Expanded Environmental Notification Form

Municipal Solid Waste Transfer Station and Recycling Center Operations Expansion

5 Incinerator Road
Dedham, MA

40 Shattuck Road, Suite 110
Andover, MA 01810
866-702-6371

woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

228482.04
Department of Public Works | Dedham, MA
January 2017

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ENVIRONMENTAL NOTIFICATION FORM

Commonwealth of Massachusetts

Executive Office of Energy and Environmental Affairs
Massachusetts Environmental Policy Act (MEPA) Office

Environmental Notification Form

For Office Use Only

EEA#: ———————————

MEPA Analyst: _____

The information requested on this form must be completed in order to submit a document electronically for review under the Massachusetts Environmental Policy Act, 301 CMR 11.00.

Project Name: **Municipal Solid Waste Transfer Station and Recycling Center Operations Expansion**		
Street Address: **5 Incinerator Road**		
Municipality: **Dedham**	Watershed: **Neponset (subbasin) Boston Harbor (major watershed)**	
Universal Transverse Mercator Coordinates:	Latitude: **42.253992** Longitude: **-71.166318**	
Estimated commencement date:**5/2018**	Estimated completion date: **5/2019**	
Project Type: **Operation Expansion**	Status of project design: **10** % complete	
Proponent: **Dedham Department of Public Works (Joseph Flanagan, Director)**		
Street Address: **55 River Street**		
Municipality: **Dedham**	State: **MA**	Zip Code: **02026**
Name of Contact Person: **Alan Benevides**, **P.E., L.S.P.**		
Firm/Agency: **Woodard & Curran**	Street Address: **40 Shattuck Road, Suite 110**	
Municipality: **Andover**	State: MA	Zip Code: **01810**
Phone: **(978) 482-7835**	Fax: **978.577.7948**	E-mail: **abenevides@woodardcurran.com**

Does this project meet or exceed a mandatory EIR threshold (see 301 CMR 11.03)?
☐Yes ☒No

If this is an Expanded Environmental Notification Form (ENF) (see 301 CMR 11.05(7)) or a Notice of Project Change (NPC), are you requesting:

a Single EIR? (see 301 CMR 11.06(8))	☐Yes ☒No
a Special Review Procedure? (see 301CMR 11.09)	☐Yes ☒No
a Waiver of mandatory EIR? (see 301 CMR 11.11)	☐Yes ☒No
a Phase I Waiver? (see 301 CMR 11.11)	☐Yes ☒No

(Note: Greenhouse Gas Emissions analysis must be included in the Expanded ENF.)

Which MEPA review threshold(s) does the project meet or exceed (see 301 CMR 11.03)?
Solid and Hazardous Waste – Expansion by more than 50 tons per day

Which State Agency Permits will the project require?
MassDEP – Authorization to Construct (ATC) and Authorization to Operate (ATO)

Identify any financial assistance or land transfer from an Agency of the Commonwealth, including the Agency name and the amount of funding or land area in acres: **N/A**

Summary of Project Size & Environmental Impacts	Existing	Change	Total
LAND			
Total site acreage	**2.34**		
New acres of land altered		**0**	
Acres of impervious area	**1.44**	**0.10**	**1.54**
Square feet of new bordering vegetated wetlands alteration		**0**	
Square feet of new other wetland alteration		**0**	
Acres of new non-water dependent use of tidelands or waterways		**0**	
STRUCTURES			
Gross square footage	**4,350**	**7,800**	**12,150**
Number of housing units	**0**	**0**	**0**
Maximum height (feet)	**30****	**10**	**40*****
TRANSPORTATION			
Vehicle trips per day	**61**	**52**	**113**
Parking spaces	**5**	**+1**	**6**
WASTEWATER			
Water Use (Gallons per day)		**0******	
Water withdrawal (GPD)		**0******	
Wastewater generation/treatment (GPD)		**0******	
Length of water mains (miles)		**0******	
Length of sewer mains (miles)		**0******	

Has this project been filed with MEPA before?
☐ Yes (EEA #_____) ☒No*****

***An Expanded Environmental Notification Form (EENF) for the expansion of operations at the Dedham Solid Waste Transfer Station was previously submitted in November 2015. However, the Town of Dedham withdrew the EENF in January 2016 before a decision was reached.**

Has any project on this site been filed with MEPA before?
☒ Yes (EEA # 8110) ☐No

**** Existing height does not include height of former smoke stack or existing cell tower.**
***** Total height does not include proposed cell tower.**
****** The proposed upgrade will increase the waste tonnage capacity, but will not increase the anticipated number of employees or daily operations; no changes to the water or wastewater usage are anticipated.**

GENERAL PROJECT INFORMATION – all proponents must fill out this section

PROJECT DESCRIPTION:

Describe the existing conditions and land uses on the project site:

- **The Site is a 2.34-acre parcel bounded by Mother Brook to the north, a commercial building with parking to the east, an undisturbed vegetated buffer to the west, and Incinerator Road to the south. Currently owned by the Town of Dedham, the Site serves as a regional transfer station, providing critical solid waste services for Dedham and the surrounding communities. The facility is currently permitted by MassDEP to handle a maximum of 250 tons per day of combined Municipal Solid Waste (MSW) and Construction & Demolition (C&D) waste.**

  There is a single 4,350 square foot building on the Site, which was constructed in 1930 and operated as an incinerator until 1975. Since then, the Site has been used as a transfer station. The Town of Dedham leases the Site to independent waste management operator; Recycling Solutions currently leases and operates the transfer station.

  The existing transfer building is cited approximately in the center of the Site, with the front of the building facing southwest. A retaining wall runs along the front of the building, with a steep grassed slope along the west side. The southern side of the Site is the material drop-off area and the western and northern sides of the Site are utilized for off-loading and material transfer.

  Areas Subject to Protection under the Massachusetts Wetland Protection Act identified on the Site include Bordering Land Subject to Flooding, Bank and Riverfront Area.

- **Refer to Section 2 of the Expanded ENF for additional information on the existing conditions.**

Describe the proposed project and its programmatic and physical elements:

- **The proposed upgrade for the transfer station and recycling center will increase the waste handling operations to an annual average of 500 tons per day, with a peak capacity of 750 tons per day. The facility upgrade will improve traffic flow, waste handling operations and overall site safety for the operators. The proposed transfer station will also enhance the residential drop-off capabilities and improve public safety. The Town intends to increase residential recycling options at the proposed facility, which will reduce the chances of residents disposing of recyclables into the solid waste stream because there was no other convenient option. Furthermore, overall environmental conditions (noise, odors, etc.) of the site will be improved as a result of the new upgrades. As a regional transfer station, the benefits of these improvements will extend beyond Town limits, providing critical solid waste management services to surrounding communities as well.**

  The proposed upgrade will be located on the existing Site, and therefore, will require the demolition of all existing site features, including the existing building, retaining walls, pavement, and fencing. The proposed transfer building, material drop-off area and off-loading area will all be located within the limits of the existing waste handling area, which ensures the proposed waste handling operations will be no closer to existing adjacent sensitive human and environmental receptors and property boundaries than the existing conditions.

  An approximately 12,140 square foot building is proposed with four waste receiving bays (three commercial and one residential) on the backside and one off-loading area in the front; the proposed transfer building will be sized so that all waste unloading, sorting and loading activities will occur within the building interior. A vehicle scale, scale house and perimeter site retaining walls are also proposed as part of the transfer station upgrade. The proposed transfer site layout has been designed to minimize impacts to the resource areas within the Site.

The proposed project is currently in the conceptual design phase. Upon the conclusion of this MEPA review, preliminary and final design of the transfer station upgrade will be completed and all local and state permits will be obtained. Permitting will include the following:

- **Modification of Site Assignment (310 CMR 16.00)**
- **Town of Dedham Planning, Zoning, and Conservation Commission Permits (Various)**
- **MassDEP Authorization to Construct Permit Authorization (310 CMR 19.00)**
- **MassDEP Authorization to Operation (310 CMR 19.00)**

Construction of the transfer station upgrade is anticipated to begin in Fall 2018 with facility startup in Winter 2020.

- **Refer to Sections 3 through 6 of the Expanded ENF for additional information on the proposed project.**

NOTE: The project description should summarize both the project's direct and indirect impacts (including construction period impacts) in terms of their magnitude, geographic extent, duration and frequency, and reversibility, as applicable. It should also discuss the infrastructure requirements of the project and the capacity of the municipal and/or regional infrastructure to sustain these requirements into the future.

Describe the on-site project alternatives (and alternative off-site locations, if applicable), considered by the proponent, including at least one feasible alternative that is allowed under current zoning, and the reasons(s) that they were not selected as the preferred alternative:

- **As part of a preliminary evaluation for expanding operations at the transfer station, three alternatives were explored:**

  1. **No change to the existing facility**
  2. **Expanded Transfer Operations – Expand the building and site to accommodate an additional tonnage of MSW and C&D without processing; or**
  3. **MSW Transfer with C&D Processing – Provide a building to transfer an additional tonnage of MSW, process C&D into recyclable products, and manage organic wastes.**

  The following table provide a description of the reasoning for the selected alternative:

No.	Alternative	Alternative Analysis
1	No Change to Existing Facility	Alternative 1 was not selected because it does not increase capacity for the region and will not provide the means for improving traffic safety, upgrading environmental conditions, or providing enhanced residential drop off capabilities.
2	Expand Transfer Operations	Alternative 2 was selected because it will increase waste capacity for the region, improve residential recycling opportunities and also improve the safety and environmental conditions of the site.
3	MSW Transfer with C&D Processing	Although Alternative 3 would provide the increase in capacity, it was not selected for the following reasons: • Significant increase in anticipated total construction cost due to the additional processing equipment required • Anticipated increase in truck traffic • Limited space on the small acreage site.

- **Refer to Section 3 of the Expanded ENF for an expanded analysis of the three site layout alternatives evaluated for the proposed expanded transfer operations.**

NOTE*: The purpose of the alternatives analysis is to consider what effect changing the parameters and/or siting of a project, or components thereof, will have on the environment, keeping in mind that the objective of the MEPA review process is to avoid or minimize damage to the environment to the greatest extent feasible. Examples of alternative projects include alternative site locations, alternative site uses, and alternative site configurations.*

Summarize the mitigation measures proposed to offset the impacts of the preferred alternative:

- **The proposed transfer building, material drop-off area and off-loading area will all be located within the horizontal footprint of the existing waste handling area, which ensures the proposed waste handling operations will be no closer to existing adjacent sensitive human and environmental receptors and property boundaries than the existing conditions. The existing waste handling area was defined during a meeting with the Massachusetts Department of Environmental Protection (DEP).**
- **As noted above, the proposed transfer station has been designed within the limits of the existing waste handling area, and therefore will be no closer to the riverfront or wetland resource areas.**
- **A portion of the currently developed site is located in the floodplain. Minor filling (up to one foot) is proposed within the existing floodplain. Compensatory flood storage is proposed between the existing developed site and Mother Brook.**
- **Refer to Section 4 of the Expanded ENF for additional information on the proposed mitigation measures.**

If the project is proposed to be constructed in phases, please describe each phase:

- **The proposed Project will not be constructed in phases.**

AREAS OF CRITICAL ENVIRONMENTAL CONCERN:

Is the project within or adjacent to an Area of Critical Environmental Concern?

☐Yes (Specify_____)

☒No

if yes, does the ACEC have an approved Resource Management Plan? ___ Yes ___ No;
If yes, describe how the project complies with this plan.

_____

Will there be stormwater runoff or discharge to the designated ACEC? ___ Yes ___ No;
If yes, describe and assess the potential impacts of such stormwater runoff/discharge to the designated ACEC.

_____

RARE SPECIES:

Does the project site include Estimated and/or Priority Habitat of State-Listed Rare Species? (see http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/priority_habitat/priority_habitat_home.htm)

☐Yes (Specify_____) ☒No

HISTORICAL /ARCHAEOLOGICAL RESOURCES:

Does the project site include any structure, site or district listed in the State Register of Historic Place or the inventory of Historic and Archaeological Assets of the Commonwealth?

☐Yes (Specify_____) ☒No

If yes, does the project involve any demolition or destruction of any listed or inventoried historic or archaeological resources? ☐Yes (Specify_____) ☐No

WATER RESOURCES:

Is there an Outstanding Resource Water (ORW) on or within a half-mile radius of the project site? ___Yes _X_No;
if yes, identify the ORW and its location. _____

(NOTE: Outstanding Resource Waters include Class A public water supplies, their tributaries, and bordering wetlands; active and inactive reservoirs approved by MassDEP; certain waters within Areas of Critical Environmental Concern, and certified vernal pools. Outstanding resource waters are listed in the Surface Water Quality Standards, 314 CMR 4.00.)

Are there any impaired water bodies on or within a half-mile radius of the project site? _**X**_ Yes ___No; if yes, identify the water body and pollutant(s) causing the impairment: **"Escherichia coli;" Mother Brook**.

Is the project within a medium or high stress basin, as established by the Massachusetts Water Resources Commission? ___Yes _**X**__No

STORMWATER MANAGEMENT:

Generally describe the project's stormwater impacts and measures that the project will take to comply with the standards found in MassDEP's Stormwater Management Regulations:

- **The proposed Project will be designed to meet the standards of the MassDEP "Massachusetts Stormwater Handbook." Due the limited acreage of the Site, it is anticipated that stormwater runoff will be managed by proprietary treatment and detention systems located below the proposed pavement. These systems will be located along the northern and western edges of the Site. The proposed proprietary treatment systems selected will provide a high level of total phosphorus removal, which is an impairment of Mother Brook**
- **Refer to Section 4.2 of the Expanded ENF for additional information.**

MASSACHUSETTS CONTINGENCY PLAN:
Has the project site been, or is it currently being, regulated under M.G.L.c.21E or the Massachusetts Contingency Plan? Yes _**X**__ No ___ ; if yes, please describe the current status of the site (including Release Tracking Number (RTN), cleanup phase, and Response Action Outcome classification):

- **Yes. On September 10, 1998, burning solid waste was discovered as a refuse collection truck was being off-loaded into a receiving hopper in a compactor bay inside the Dedham Transfer Station. Site conditions were restored to background conditions and the requirements for a Class A-1 Response Action Outcome were met.**
- **DEP Release Tracking No. 3-17280**

Is there an Activity and Use Limitation (AUL) on any portion of the project site? Yes ___ No _**X**__; if yes, describe which portion of the site and how the project will be consistent with the AUL: _____.

Are you aware of any Reportable Conditions at the property that have not yet been assigned an RTN? Yes ___ No _**X**__ ; if yes, please describe:_____

SOLID AND HAZARDOUS WASTE:

If the project will generate solid waste during demolition or construction, describe alternatives considered for re-use, recycling, and disposal of, e.g., asphalt, brick, concrete, gypsum, metal, wood:

- **The proposed Project is a MSW and C&D transfer station on a small site (<2.5 acre); all solid waste generated as a part of demolition and construction will be properly disposed of in accordance with Massachusetts Solid Waste Regulations.**

(NOTE: Asphalt pavement, brick, concrete and metal are banned from disposal at Massachusetts landfills and waste combustion facilities and wood is banned from disposal at Massachusetts landfills. See 310 CMR 19.017 for the complete list of banned materials.)

Will your project disturb asbestos containing materials? Yes _*__ No _*_ ;
if yes, please consult state asbestos requirements at http://mass.gov/MassDEP/air/asbhom01.htm

- **A hazardous material evaluation of the existing building materials will be conducted during future design phases**

Describe anti-idling and other measures to limit emissions from construction equipment:

- **"No Idling" will be permeant posted on the site in accordance with Massachusetts Laws Part 1,**

Title XIV, Chapter 90, Section 16A.

DESIGNATED WILD AND SCENIC RIVER:

Is this project site located wholly or partially within a defined river corridor of a federally designated Wild and Scenic River or a state designated Scenic River? Yes ___ No _**X**__ ;
if yes, specify name of river and designation:

If yes, does the project have the potential to impact any of the "outstandingly remarkable" resources of a federally Wild and Scenic River or the stated purpose of a state designated Scenic River? Yes ___ No ___ ; if yes, specify name of river and designation: _____;
if yes, will the project will result in any impacts to any of the designated "outstandingly remarkable" resources of the Wild and Scenic River or the stated purposes of a Scenic River.
Yes ___ No ___ ;
if yes,describe the potential impacts to one or more of the "outstandingly remarkable" resources or stated purposes and mitigation measures proposed.

ATTACHMENTS:

1. List of all attachments to this document.
2. U.S.G.S. map (good quality color copy, 8-½ x 11 inches or larger, at a scale of 1:24,000) indicating the project location and boundaries.
3.. Plan, at an appropriate scale, of existing conditions on the project site and its immediate environs, showing all known structures, roadways and parking lots, railroad rights-of-way, wetlands and water bodies, wooded areas, farmland, steep slopes, public open spaces, and major utilities.
4 Plan, at an appropriate scale, depicting environmental constraints on or adjacent to the project site such as Priority and/or Estimated Habitat of state-listed rare species, Areas of Critical Environmental Concern, Chapter 91 jurisdictional areas, Article 97 lands, wetland resource area delineations, water supply protection areas, and historic resources and/or districts.
5. Plan, at an appropriate scale, of proposed conditions upon completion of project (if construction of the project is proposed to be phased, there should be a site plan showing conditions upon the completion of each phase).
6. List of all agencies and persons to whom the proponent circulated the ENF, in accordance with 301 CMR 11.16(2).
7. List of municipal and federal permits and reviews required by the project, as applicable.

LAND SECTION – all proponents must fill out this section

I. Thresholds / Permits

A. Does the project meet or exceed any review thresholds related to **land** (see 301 CMR 11.03(1)
___ Yes _**X**__ No; if yes, specify each threshold:

II. Impacts and Permits

A. Describe, in acres, the current and proposed character of the project site, as follows:

	Existing	Change	Total
Footprint of buildings	**0.10 AC**	**0.18 AC**	**0.28 AC**
Internal roadways	**0.00 AC**	**0.00 AC**	**0.00 AC**
Parking and other paved areas	**1.34 AC**	-**0.08 AC**	**1.26 AC**
Other altered areas	**0.12 AC**	-**0.07 AC**	**0.05 AC**
Undeveloped areas	**0.78 AC**	**-0.03 AC**	**0.75 AC**
Total: Project Site Acreage	**2.34 AC**	**0.00 AC**	**2.34 AC**

B. Has any part of the project site been in active agricultural use in the last five years?
___ Yes _**X**_ No; if yes, how many acres of land in agricultural use (with prime state or locally important agricultural soils) will be converted to nonagricultural use?

C. Is any part of the project site currently or proposed to be in active forestry use?
___ Yes _**X**_ No; if yes, please describe current and proposed forestry activities and indicate whether any part of the site is the subject of a forest management plan approved by the Department of Conservation and Recreation:

D. Does any part of the project involve conversion of land held for natural resources purposes in accordance with Article 97 of the Amendments to the Constitution of the Commonwealth to any purpose not in accordance with Article 97? ___ Yes _**X**__ No; if yes, describe:

E. Is any part of the project site currently subject to a conservation restriction, preservation restriction, agricultural preservation restriction or watershed preservation restriction? ___ Yes _**X**_ No; if yes, does the project involve the release or modification of such restriction? ___ Yes ___ No; if yes, describe:

F. Does the project require approval of a new urban redevelopment project or a fundamental change in an existing urban redevelopment project under M.G.L.c.121A? ___ Yes _**X**_ No; if yes, describe:

G. Does the project require approval of a new urban renewal plan or a major modification of an existing urban renewal plan under M.G.L.c.121B? Yes ___ No _**X**_; if yes, describe:

III. Consistency

A. Identify the current municipal comprehensive land use plan
Title:__**Town of Dedham Master Plan**_____ Date____**April 2009**_____

B. Describe the project's consistency with that plan with regard to:
1) economic development **The proposed project aligns with the Town's Master Plan Goal to increase the efficiency of town operations and services. The proposed transfer station will also provide residents and businesses the opportunity to recycle more, and off-load materials faster, easier and more efficiently.**
2) adequacy of infrastructure **The proposed transfer station upgrade will utilize existing infrastructure (i.e. roads, utilities)**

3) open space impacts **The proposed transfer station upgrade will not impact the Town's existing open spaces or recreation areas.**
4) compatibility with adjacent land uses **The use of the adjacent developed land is commercial and compatible with current use and proposed use of the project Site.**

C. Identify the current Regional Policy Plan of the applicable Regional Planning Agency (RPA)
RPA: **Metropolitan Area Planning Council**

Title: **Metropolitan Area Planning Council Strategic Plan** Date **October 2014**

D. Describe the project's consistency with that plan with regard to: **See Above**
1) economic development **The proposed project aligns with the MAPC strategy of concentrating development in areas of people, jobs and infrastructure already exist.**
2) adequacy of infrastructure **The proposed transfer station upgrade will utilize existing infrastructure (i.e. roads, utilities)**
3) open space impacts **The proposed transfer station upgrade will not impact the existing open spaces or recreation areas.**

RARE SPECIES SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **rare species or habitat** (see 301 CMR 11.03(2))? ___ Yes _**X**__ No; if yes, specify, in quantitative terms:

(NOTE: If you are uncertain, it is recommended that you consult with the Natural Heritage and Endangered Species Program (NHESP) prior to submitting the ENF.)

B. Does the project require any state permits related to **rare species or habitat**? ___ Yes _**X**_ No

C. Does the project site fall within mapped rare species habitat (Priority or Estimated Habitat?) in the current Massachusetts Natural Heritage Atlas (attach relevant page)? ___ Yes _**X**__ No.

D. If you answered "No" to all questions A, B and C, proceed to the **Wetlands, Waterways, and Tidelands Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Rare Species section below.

II. Impacts and Permits – Not applicable

A. Does the project site fall within Priority or Estimated Habitat in the current Massachusetts Natural Heritage Atlas (attach relevant page)? ___ Yes ___ No. If yes,

1. Have you consulted with the Division of Fisheries and Wildlife Natural Heritage and Endangered Species Program (NHESP)? ___Yes ___No; if yes, have you received a determination as to whether the project will result in the "take" of a rare species? ___ Yes ___ No; if yes, attach the letter of determination to this submission.

2. Will the project "take" an endangered, threatened, and/or species of special concern in accordance with M.G.L. c.131A (see also 321 CMR 10.04)? ___ Yes ___ No; if yes, provide a summary of proposed measures to minimize and mitigate rare species impacts

3. Which rare species are known to occur within the Priority or Estimated Habitat?

4. Has the site been surveyed for rare species in accordance with the Massachusetts Endangered Species Act? ___ Yes ___ No

4. If your project is within Estimated Habitat, have you filed a Notice of Intent or received an Order of Conditions for this project? ___ Yes ___ No; if yes, did you send a copy of the Notice of Intent to the Natural Heritage and Endangered Species Program, in accordance with the Wetlands Protection Act regulations? ___ Yes ___ No

B. Will the project "take" an endangered, threatened, and/or species of special concern in accordance with M.G.L. c.131A (see also 321 CMR 10.04)? ___ Yes ___ No; if yes, provide a summary of proposed measures to minimize and mitigate impacts to significant habitat:

WETLANDS, WATERWAYS, AND TIDELANDS SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **wetlands, waterways, and tidelands** (see 301 CMR 11.03(3))? ___ Yes _**X**_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits (or a local Order of Conditions) related to **wetlands, waterways, or tidelands**? _**X**_ Yes ___ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Water Supply Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Wetlands, Waterways, and Tidelands Section below.

II. Wetlands Impacts and Permits

A. Does the project require a new or amended Order of Conditions under the Wetlands Protection Act (M.G.L. c.131A)? _**X**_ Yes ___ No; if yes, has a Notice of Intent been filed? ___ Yes _**X**_ No; if yes, list the date and MassDEP file number: _____; if yes, has a local Order of Conditions been issued? ___ Yes ___ No; Was the Order of Conditions appealed? ___ Yes ___ No. Will the project require a Variance from the Wetlands regulations? ___ Yes _**X**_ No.

B. Describe any proposed permanent or temporary impacts to wetland resource areas located on the project site:

- **The proposed Project will result in \impacts to the floodplain and permanent redevelopment of the riverfront area located on the existing site; refer to Section 4.3 of the Expanded ENF for further details.**

  The proposed transfer building, material drop-off area and off-loading area will all be located within the limits of the existing waste handling area, and therefore will not be closer to riverfront or wetland resource areas.

C. Estimate the extent and type of impact that the project will have on wetland resources, and indicate whether the impacts are temporary or permanent:

Coastal Wetlands	Area (square feet) or Length (linear feet)	Temporary or Permanent Impact?
Land Under the Ocean	**N/A**	
Designated Port Areas	**N/A**	
Coastal Beaches	**N/A**	
Coastal Dunes	**N/A**	
Barrier Beaches	**N/A**	
Coastal Banks	**N/A**	
Rocky Intertidal Shores	**N/A**	
Salt Marshes	**N/A**	
Land Under Salt Ponds	**N/A**	
Land Containing Shellfish	**N/A**	
Fish Runs	**N/A**	
Land Subject to Coastal Storm Flowage	**N/A**	
Inland Wetlands		
Bank (lf)	**0 LF**	
Bordering Vegetated Wetlands	**N/A**	
Isolated Vegetated Wetlands	**N/A**	

Land under Water	N/A	
Isolated Land Subject to Flooding	**N/A**	
Bordering Land Subject to Flooding	**4,350 SF**	**Permanent**
Riverfront Area	**60,818 SF**	**Permanent (Redevelopment)**

D. Is any part of the project:

1. proposed as a **limited project**? ___ Yes __**X**_ No; if yes, what is the area (in sf)?____
2. the construction or alteration of a **dam**? ___ Yes _**X**_ No; if yes, describe:
3. fill or structure in a **velocity zone** or **regulatory floodway**? ___ Yes _**X**_ No
4. dredging or disposal of dredged material? ___ Yes _**X**_ No; if yes, describe the volume of dredged material and the proposed disposal site:
5. a discharge to an **Outstanding Resource Water (ORW)** or an **Area of Critical Environmental Concern (ACEC)**? ___ Yes _**X**_ No
6. subject to a wetlands restriction order? ___ Yes _**X**_ No; if yes, identify the area (in sf):
7. located in buffer zones? ___Yes _**X**_ No; if yes, how much (in sf) _____

E. Will the project:

1. be subject to a local wetlands ordinance or bylaw? _**X**_ Yes ___ No
2. alter any federally-protected wetlands not regulated under state law? ___ Yes _**X**_ No; if yes, what is the area (sf)?

III. Waterways and Tidelands Impacts and Permits

A. Does the project site contain waterways or tidelands (including filled former tidelands) that are subject to the Waterways Act, M.G.L.c.91? ___ Yes _**X**_ No; if yes, is there a current Chapter 91 License or Permit affecting the project site? ___ Yes __ No; if yes, list the date and license or permit number and provide a copy of the historic map used to determine extent of filled tidelands:

C. Does the project require a new or modified license or permit under M.G.L.c.91? ___ Yes _**X** No; if yes, how many acres of the project site subject to M.G.L.c.91 will be for non-water-dependent use? Current ___ Change ___ Total ___

If yes, how many square feet of solid fill or pile-supported structures (in sf)?

C. For non-water-dependent use projects, indicate the following:

Area of filled tidelands on the site:_____

Area of filled tidelands covered by buildings:_____

For portions of site on filled tidelands, list ground floor uses and area of each use:

_____

Does the project include new non-water-dependent uses located over flowed tidelands? Yes ___ No ___

Height of building on filled tidelands_____

Also show the following on a site plan: Mean High Water, Mean Low Water, Water-dependent Use Zone, location of uses within buildings on tidelands, and interior and exterior areas and facilities dedicated for public use, and historic high and historic low water marks.

D. Is the project located on landlocked tidelands? ___ Yes _**X**_ No; if yes, describe the project's impact on the public's right to access, use and enjoy jurisdictional tidelands and describe measures the project will implement to avoid, minimize or mitigate any adverse impact:

E. Is the project located in an area where low groundwater levels have been identified by a municipality or by a state or federal agency as a threat to building foundations? ___Yes __**X** No; if yes, describe the project's impact on groundwater levels and describe

measures the project will implement to avoid, minimize or mitigate any adverse impact:

F. Is the project non-water-dependent **and** located on landlocked tidelands **or** waterways or tidelands subject to the Waterways Act **and** subject to a mandatory EIR? ___ Yes _**X**_ No;
(NOTE: If yes, then the project will be subject to Public Benefit Review and Determination.)

G. Does the project include dredging? ___ Yes _**X**_ No; if yes, answer the following questions:
What type of dredging? Improvement ___ Maintenance ___ Both ____
What is the proposed dredge volume, in cubic yards (cys) _____
What is the proposed dredge footprint ____length (ft) ___width (ft)____depth (ft);
Will dredging impact the following resource areas?
Intertidal Yes__ No__; if yes, ___ sq ft
Outstanding Resource Waters Yes__ No__; if yes, ___ sq ft
Other resource area (i.e. shellfish beds, eel grass beds) Yes__ No__; if yes __ sq ft
If yes to any of the above, have you evaluated appropriate and practicable steps to: 1) avoidance; 2) if avoidance is not possible, minimization; 3) if either avoidance or minimize is not possible, mitigation?
If no to any of the above, what information or documentation was used to support this determination?
Provide a comprehensive analysis of practicable alternatives for improvement dredging in accordance with 314 CMR 9.07(1)(b). Physical and chemical data of the sediment shall be included in the comprehensive analysis.
Sediment Characterization
Existing gradation analysis results? __Yes ___No: if yes, provide results.
Existing chemical results for parameters listed in 314 CMR 9.07(2)(b)6? ___Yes ____No; if yes, provide results.
Do you have sufficient information to evaluate feasibility of the following management options for dredged sediment? If yes, check the appropriate option.

Beach Nourishment ___
Unconfined Ocean Disposal ___
Confined Disposal:
Confined Aquatic Disposal (CAD) ___
Confined Disposal Facility (CDF) ___
Landfill Reuse in accordance with COMM-97-001 ___
Shoreline Placement ___
Upland Material Reuse____
In-State landfill disposal____
Out-of-state landfill disposal ____
(NOTE: This information is required for a 401 Water Quality Certification.)

IV. Consistency:

A. Does the project have effects on the coastal resources or uses, and/or is the project located within the Coastal Zone? ___ Yes _**X**_ No; if yes, describe these effects and the projects consistency with the policies of the Office of Coastal Zone Management:

B. Is the project located within an area subject to a Municipal Harbor Plan? ___ Yes _**X**_ No; if yes, identify the Municipal Harbor Plan and describe the project's consistency with that plan:

WATER SUPPLY SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **water supply** (see 301 CMR 11.03(4))? ___ Yes _**X**__ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **water supply**? ___ Yes _**X**__ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Wastewater Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Water Supply Section below.

II. Impacts and Permits

A. Describe, in gallons per day (gpd), the volume and source of water use for existing and proposed activities at the project site:

	Existing	Change	Total
Municipal or regional water supply	_____	_____	_____
Withdrawal from groundwater	_____	_____	_____
Withdrawal from surface water	_____	_____	_____
Interbasin transfer	_____	_____	_____

(NOTE: Interbasin Transfer approval will be required if the basin and community where the proposed water supply source is located is different from the basin and community where the wastewater from the source will be discharged.)

B. If the source is a municipal or regional supply, has the municipality or region indicated that there is adequate capacity in the system to accommodate the project? ___ Yes ___ No

C. If the project involves a new or expanded withdrawal from a groundwater or surface water source, has a pumping test been conducted? ___ Yes ___ No; if yes, attach a map of the drilling sites and a summary of the alternatives considered and the results. _____

D. What is the currently permitted withdrawal at the proposed water supply source (in gallons per day)? _____Will the project require an increase in that withdrawal? ___Yes ___No; if yes, then how much of an increase (gpd)? _____

E. Does the project site currently contain a water supply well, a drinking water treatment facility, water main, or other water supply facility, or will the project involve construction of a new facility? ___ Yes ___No. If yes, describe existing and proposed water supply facilities at the project site:

	Permitted Flow	Existing Avg Daily Flow	Project Flow	Total
Capacity of water supply well(s) (gpd)	_____	_____	_____	_____
Capacity of water treatment plant (gpd)	_____	_____	_____	_____

F. If the project involves a new interbasin transfer of water, which basins are involved, what is the direction of the transfer, and is the interbasin transfer existing or proposed?

G. Does the project involve:

1. new water service by the Massachusetts Water Resources Authority or other agency of the Commonwealth to a municipality or water district? ___ Yes ___ No
2. a Watershed Protection Act variance? ___ Yes ___ No; if yes, how many acres of alteration?
3. a non-bridged stream crossing 1,000 or less feet upstream of a public surface drinking

water supply for purpose of forest harvesting activities? ___ Yes ___ No

III. Consistency

Describe the project's consistency with water conservation plans or other plans to enhance water resources, quality, facilities and services:

WASTEWATER SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **wastewater** (see 301 CMR 11.03(5))? ___ Yes __**X**_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **wastewater**? ___ Yes __**X**_ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Transportation -- Traffic Generation Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Wastewater Section below.

II. Impacts and Permits

A. Describe the volume (in gallons per day) and type of disposal of wastewater generation for existing and proposed activities at the project site (calculate according to 310 CMR 15.00 for septic systems or 314 CMR 7.00 for sewer systems):

	Existing	Change	Total
Discharge of sanitary wastewater	_____	_____	_____
Discharge of industrial wastewater	_____	_____	_____
TOTAL	_____	_____	_____

	Existing	Change	Total
Discharge to groundwater	_____	_____	_____
Discharge to outstanding resource water	_____	_____	_____
Discharge to surface water	_____	_____	_____
Discharge to municipal or regional wastewater facility	_____	_____	_____
TOTAL	_____	_____	_____

B. Is the existing collection system at or near its capacity? ___ Yes ___ No; if yes, then describe the measures to be undertaken to accommodate the project's wastewater flows:

C. Is the existing wastewater disposal facility at or near its permitted capacity? ___ Yes___ No; if yes, then describe the measures to be undertaken to accommodate the project's wastewater flows:

D. Does the project site currently contain a wastewater treatment facility, sewer main, or other wastewater disposal facility, or will the project involve construction of a new facility? ___ Yes ___ No; if yes, describe as follows:

	Permitted	Existing Avg Daily Flow	Project Flow	Total
Wastewater treatment plant capacity (in gallons per day)	_____	_____	_____	_____

E. If the project requires an interbasin transfer of wastewater, which basins are involved, what is the direction of the transfer, and is the interbasin transfer existing or new?

(NOTE: Interbasin Transfer approval may be needed if the basin and community where wastewater will be discharged is different from the basin and community where the source of water supply is located.)

F. Does the project involve new sewer service by the Massachusetts Water Resources Authority (MWRA) or other Agency of the Commonwealth to a municipality or sewer district? ___ Yes ___ No

G. Is there an existing facility, or is a new facility proposed at the project site for the storage, treatment, processing, combustion or disposal of sewage sludge, sludge ash, grit, screenings, wastewater reuse (gray water) or other sewage residual materials? ___ Yes ___ No; if yes, what is the capacity (tons per day):

	Existing	Change	Total
Storage	_____	_____	_____
Treatment	_____	_____	_____
Processing	_____	_____	_____
Combustion	_____	_____	_____
Disposal	_____	_____	_____

H. Describe the water conservation measures to be undertaken by the project, and other wastewater mitigation, such as infiltration and inflow removal.

III. Consistency

A. Describe measures that the proponent will take to comply with applicable state, regional, and local plans and policies related to wastewater management:

B. If the project requires a sewer extension permit, is that extension included in a comprehensive wastewater management plan? ___ Yes ___ No; if yes, indicate the EEA number for the plan and whether the project site is within a sewer service area recommended or approved in that plan:

TRANSPORTATION SECTION (TRAFFIC GENERATION)

I. Thresholds / Permit

A. Will the project meet or exceed any review thresholds related to **traffic generation** (see 301 CMR 11.03(6))? ___ Yes _**X**__ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **state-controlled roadways**? ___ Yes _**X**__ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Roadways and Other Transportation Facilities Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Traffic Generation Section below.

II. Traffic Impacts and Permits

A. Describe existing and proposed vehicular traffic generated by activities at the project site:

	Existing	Change	Total
Number of parking spaces	_____	_____	_____
Number of vehicle trips per day	_____	_____	_____
ITE Land Use Code(s):	_____	_____	_____

B. What is the estimated average daily traffic on roadways serving the site?

Roadway	Existing	Change	Total
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____

C. If applicable, describe proposed mitigation measures on state-controlled roadways that the project proponent will implement:

D. How will the project implement and/or promote the use of transit, pedestrian and bicycle facilities and services to provide access to and from the project site?

C. Is there a Transportation Management Association (TMA) that provides transportation demand management (TDM) services in the area of the project site? ____ Yes ____ No; if yes, describe if and how will the project will participate in the TMA:

D. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation facilities? ____ Yes ____ No; if yes, generally describe:

E. If the project will penetrate approach airspace of a nearby airport, has the proponent filed a Massachusetts Aeronautics Commission Airspace Review Form (780 CMR 111.7) and a Notice of Proposed Construction or Alteration with the Federal Aviation Administration (FAA) (CFR Title 14 Part 77.13, forms 7460-1 and 7460-2)?

III. Consistency

Describe measures that the proponent will take to comply with municipal, regional, state, and federal plans and policies related to traffic, transit, pedestrian and bicycle transportation facilities and services:

TRANSPORTATION SECTION (ROADWAYS AND OTHER TRANSPORTATION FACILITIES)

I. Thresholds

A. Will the project meet or exceed any review thresholds related to **roadways or other transportation facilities** (see 301 CMR 11.03(6))? ___ Yes _X__ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **roadways or other transportation facilities**? ___ Yes _X__ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Energy Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Roadways Section below.

II. Transportation Facility Impacts

A. Describe existing and proposed transportation facilities in the immediate vicinity of the project site:

B. Will the project involve any

1. Alteration of bank or terrain (in linear feet)? _____
2. Cutting of living public shade trees (number)? _____
3. Elimination of stone wall (in linear feet)? _____

III. Consistency -- Describe the project's consistency with other federal, state, regional, and local plans and policies related to traffic, transit, pedestrian and bicycle transportation facilities and services, including consistency with the applicable regional transportation plan and the Transportation Improvements Plan (TIP), the State Bicycle Plan, and the State Pedestrian Plan:

ENERGY SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **energy** (see 301 CMR 11.03(7))? ___ Yes _**X**__ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **energy**? ___ Yes _**X**__ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Air Quality Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Energy Section below.

II. Impacts and Permits

A. Describe existing and proposed energy generation and transmission facilities at the project site:

	Existing	Change	Total
Capacity of electric generating facility (megawatts)	_____	_____	_____
Length of fuel line (in miles)	_____	_____	_____
Length of transmission lines (in miles)	_____	_____	_____
Capacity of transmission lines (in kilovolts)	_____	_____	_____

B. If the project involves construction or expansion of an electric generating facility, what are:

1. the facility's current and proposed fuel source(s)?
2. the facility's current and proposed cooling source(s)?

C. If the project involves construction of an electrical transmission line, will it be located on a new, unused, or abandoned right of way? ___Yes ___No; if yes, please describe:

D. Describe the project's other impacts on energy facilities and services:

III. Consistency

Describe the project's consistency with state, municipal, regional, and federal plans and policies for enhancing energy facilities and services:

AIR QUALITY SECTION

I. Thresholds

A. Will the project meet or exceed any review thresholds related to **air quality** (see 301 CMR 11.03(8))? ___ Yes _**X**__ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **air quality**? ___ Yes _**X**__ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Solid and Hazardous Waste Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Air Quality Section below.

II. Impacts and Permits

A. Does the project involve construction or modification of a major stationary source (see 310 CMR 7.00, Appendix A)? ___ Yes ___ No; if yes, describe existing and proposed emissions (in tons per day) of:

	Existing	Change	Total
Particulate matter	_____	_____	_____
Carbon monoxide	_____	_____	_____
Sulfur dioxide	_____	_____	_____
Volatile organic compounds	_____	_____	_____
Oxides of nitrogen	_____	_____	_____
Lead	_____	_____	_____
Any hazardous air pollutant	_____	_____	_____
Carbon dioxide	_____	_____	_____

B. Describe the project's other impacts on air resources and air quality, including noise impacts:

III. Consistency

A. Describe the project's consistency with the State Implementation Plan:

B. Describe measures that the proponent will take to comply with other federal, state, regional, and local plans and policies related to air resources and air quality:

SOLID AND HAZARDOUS WASTE SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **solid or hazardous waste** (see 301 CMR 11.03(9))? _**X**__ Yes ___ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **solid and hazardous waste**? _**X**__ Yes ___ No; if yes, specify which permit:

Massachusetts Department of Environmental Protection Authorization to Construct
Massachusetts Department of Environmental Protection Authorization to Operate

C. If you answered "No" to both questions A and B, proceed to the **Historical and Archaeological Resources Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Solid and Hazardous Waste Section below.

II. Impacts and Permits

A. Is there any current or proposed facility at the project site for the storage, treatment, processing, combustion or disposal of solid waste? _**X**_ Yes ___ No; if yes, what is the volume (in tons per day) of the capacity:

	Existing	Change	Total
Storage	**250 tpd**	**250 tpd**	**500 tpd***
Treatment, processing	**0**	**0**	**0**
Combustion	**0**	**0**	**0**
Disposal	**0**	**0**	**0**

***The proposed upgrade for the transfer station will increase the waste handling operations to an annual average of 500 tons per day, with a peak capacity of 750 tons per day.**

B. Is there any current or proposed facility at the project site for the storage, recycling, treatment or disposal of hazardous waste? ___ Yes _**X**_ No; if yes, what is the volume (in tons or gallons per day) of the capacity:

	Existing	Change	Total
Storage			
Recycling			
Treatment			
Disposal			

C. If the project will generate solid waste (for example, during demolition or construction), describe alternatives considered for re-use, recycling, and disposal:

- **The proposed Project is a transfer station that will handle solid waste for shipment off-site.**

D. If the project involves demolition, do any buildings to be demolished contain asbestos? _*****__ Yes _*****_ No

- **A hazardous material evaluation of the existing building materials will be conducted during future design phases**

E. Describe the project's other solid and hazardous waste impacts (including indirect impacts):

- **The proposed Project is a MSW and C&D transfer station. The proposed building will**

be sized to contain all material handling operations inside the building, minimizing impacts to the site and surrounding resource areas.

III. Consistency

Describe measures that the proponent will take to comply with the State Solid Waste Master Plan:

- **The proposed MSW and C&D transfer station will provide an efficient means of transferring waste generated in the municipality to permitted disposal facilities. Roll-off containers will be provided to allow for recycling of some materials included in the Massachusetts Waste Disposal Bans.**

HISTORICAL AND ARCHAEOLOGICAL RESOURCES SECTION

I. Thresholds / Impacts

A. Have you consulted with the Massachusetts Historical Commission? ___ Yes _**X**_ No; if yes, attach correspondence. For project sites involving lands under water, have you consulted with the Massachusetts Board of Underwater Archaeological Resources? ____Yes __**X**__ No; if yes, attach correspondence

B. Is any part of the project site a historic structure, or a structure within a historic district, in either case listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth? ___ Yes _**X**__ No; if yes, does the project involve the demolition of all or any exterior part of such historic structure? ___ Yes ___ No; if yes, please describe:

C. Is any part of the project site an archaeological site listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth? ___ Yes _**X**_ No; if yes, does the project involve the destruction of all or any part of such archaeological site? ___ Yes ___ No; if yes, please describe:

D. If you answered "No" to all parts of both questions A, B and C, proceed to the **Attachments and Certifications** Sections. If you answered "Yes" to any part of either question A or question B, fill out the remainder of the Historical and Archaeological Resources Section below.

II. Impacts

Describe and assess the project's impacts, direct and indirect, on listed or inventoried historical and archaeological resources:

III. Consistency

Describe measures that the proponent will take to comply with federal, state, regional, and local plans and policies related to preserving historical and archaeological resources:

CERTIFICATIONS:

1. The Public Notice of Environmental Review has been/will be published in the following newspapers in accordance with 301 CMR 11.15(1):
   Dedham Times; Bay State Banner & El Mundo Newspaper (Name) 1/13/17 (Dedham Times); 1/19/17 (Bay State Banner & El Mundo Newspaper) (Date)

2. This form has been circulated to Agencies and Persons in accordance with 301 CMR 11.16(2).

Signatures:

Date	Signature of Responsible Officer or Proponent	Date	Signature of person preparing NPC (if different from above)
1/12/17	Joseph M. Flanagan	1/12/17	Alan Benevides

Joseph Flanagan	Alan Benevides, PE
Name (print or type)	Name (print or type)
Town of Dedham	Woodard & Curran
Firm/Agency	Firm/Agency
55 River Street	40 Shattuck Road, Suite 110
Street	Street
Dedham, MA 02026	Andover, MA 01810
Municipality/State/Zip	Municipality/State/Zip
1 (781) 751-9350	1 (978) 482-7835
Phone	Phone

1. PROJECT SUMMARY

The proposed project consists of expanding operations at the Town of Dedham (Town) owned transfer station facility, located at 5 Incinerator Road. The Dedham Transfer Station is authorized to handle Municipal Solid Waste (MSW) and Construction & Demolition (C&D) waste in accordance with the most recent Massachusetts Department of Environmental Protection (MassDEP) permit, effective on December 1, 2011. The facility is authorized to accept a maximum of 250 tons per day of combined MSW and C&D. In 2013, the Town began the process of exploring upgrade and expansion possibilities of the facility. The goals of the project include:

- Increasing capacity of solid waste management for Dedham and the surrounding communities by providing a long-term opportunity for regional waste transfer.
- Improve site safety and traffic flow.
- Provide state of the art waste handling operations.
- Improve environmental conditions, including odor management, stormwater runoff treatment, litter control, etc.
- Enhance the residential drop-off capabilities and improve public safety.

The Town contracted with Woodard & Curran to develop a conceptual building footprint and site layout for a future solid waste transfer station that expands waste stream operations and considers current and future market opportunities and regulatory requirements. Woodard & Curran evaluated the following options:

- No Change to the Existing Facility;
- Expanded Transfer Operations – Expand the building and site to accommodate an additional tonnage of MSW, residential recycling, and C&D waste without processing; or
- MSW Transfer with C&D Processing – Provide a building to transfer an additional tonnage of MSW, process C&D into recyclable products, and manage organic wastes.

Upon review of the conceptual expansion plans and analysis prepared by Woodard & Curran, the Town has decided to proceed with the option of expanding the transfer station operations from the current 250 tons per day to an annual average of 500 tons per day. No on-site waste processing is proposed for the expanded facility.

The proposed transfer station and recycling center upgrade does not trigger any Massachusetts Environmental Policy Act (MEPA) Mandatory EIR thresholds for Solid Waste, Traffic, or other state review categories. The proposed upgrade does, however, trigger an Environmental Notification Form (ENF) under the state review category of Solid and Hazardous Waste due to the expansion of the facility by more than 50 tons per day. Woodard & Curran has prepared the following Expanded ENF, which is intended to demonstrate the minimal impacts of the proposed transfer station and recycling center upgrade. The studies presented herein include a Traffic Study, Evaluation of Greenhouse Gas Emissions and a scope of work for a future Noise Study. Additionally, because the project exceeds the ENF threshold for Solid and Hazardous Waste and is located within one mile of designated populations, the project is subjected to the Executive Office of Energy and Environmental Affairs Environmental Justice (EJ) Policy and requires enhanced public participation during MEPA review. A complete list of the regulatory agencies receiving copies of the Expanded ENF and copies of the three public notices published in local papers are provided in **Appendix A**.

2. EXISTING CONDITIONS

2.1 PRESENT SITE CONDITIONS

The subject property (the Site) is located at 5 Incinerator Road in Dedham, MA. The Site is a 2.34-acre parcel bounded by Mother Brook to the north, a commercial building with parking to the east, an undisturbed vegetated buffer to the west, and Incinerator Road to the south. A USGS Site Location Map has been included in **Appendix B**.

The Site and immediate surrounding properties are located within the Highway Business District and a Wireless Communications Service Overlay District. Currently owned by the Town of Dedham, the Site serves as a transfer station. The Town leases the Site to an independent waste management operator; Recycling Solutions currently leases and operates the transfer station facility.

The single building located on the Site was constructed in 1930 and operated as an incinerator until 1975. Since then, the Site has been used as a transfer station. The 4,350 square foot transfer building is located approximately in the center of the Site, with the front of the building facing southwest. A retaining wall runs along the front of the building, with a steep grassed slope along the west side. The southern side of the Site is the material drop-off area. Waste handling vehicles enter the Site from the southern driveway off Incinerator Road and drive up to the truck scale, located in front (south side) of the transfer building. Once weighed, the waste handling vehicles pull forward and back into one of two receiving bays located on the front of the transfer building and empty the contents onto the interior tipping floor. The waste handling vehicles then exit the Site via the southern driveway. A separate exterior material drop-off area for residents and commercial haulers with C&D waste is located in front of the transfer building on a concrete pad next to the retaining wall. These discarded materials are loaded from the drop-off area into transfer trailers and/or roll-off containers that are located along the lower side of a retaining wall.

The western and northern sides of the Site is the off-loading and material transfer area. The transfer trailers enter the Site from the western driveway off Incinerator Road and drive to the backside (north side) of the transfer building to be loaded with the MSW or C&D waste from the building. Fully loaded trailers leave the site via the western driveway. Additional empty transfer trailers are stored on Site within the material transfer area. An existing conditions plan showing the transfer building and site layout has been included in **Appendix D.**

2.1.1 Current Waste Tonnage and Composition

The MassDEP regulates all transfer stations in the Commonwealth of Massachusetts. The MassDEP issued an Authorization to Operate (ATO) permit, NESW-TS-018 dated July 21, 1993 for the Dedham Transfer Station. The current ATO allows the facility to accept up to 250 tons per day of solid waste; this includes both MSW and C&D. There are no limitations on the portions of each type of waste streams. Woodard & Curran was unable to locate any records as to the current breakdown of these waste streams. Based on discussions with existing facility personnel, Woodard & Curran has assumed that under the existing conditions, that the Site accepts an average of 250 tons per day consisting of 90% Commercial MSW and 10% C&D Waste.

2.2 RESOURCE AREAS

A wetland scientist from Woodard & Curran visited the Dedham Transfer Station on April 16, 2014 to identify the natural resource areas within the Site; Mother Brook is the only surface water feature identified. This waterway originates from the Charles River, located approximately 1,000 feet west of the property, and flows along the northern and eastern sides of the property eastward to its confluence with the Neponset River, approximately two miles downstream of the property. Factors considered in delineating the wetland boundaries included presence or absence of wetland vegetation, hydric soil characteristics, hydrology, and bankfull indicators.

The banks of Mother Brook were observed to be steep and heavily vegetated. Vegetation at the property was dormant during the site visit. Therefore, observations of vegetation were limited to only noting the presence of species where possible (vegetation was generally comprised of red maple saplings, poison ivy and dormant brush). Estimations of percent cover/percent dominance were not made. Overall, the riverbank boundaries throughout the property were well defined by topography and man-made features, with paved/developed land present directly adjacent to the break in the riverbank slope. Photographs 1 and 2 below depict upstream and downstream views of Mother Brook. No wetlands, vernal pools, or other surface water features were observed at the property.

Photo 1. View upstream of Mother Brook facing Incinerator Road crossing.

Photo 2. View downstream of Mother Brook

Woodard & Curran demarcated the top of bank (TOB) with flags TB-1 through TB-8, TB-10, and TB-11 (flag TB-9 was inadvertently omitted from the flag series), beginning at the brook's crossing at Incinerator Road. Due to difficulties accessing the bank because of the presence of a chain-link fence, icy conditions and steep, heavily vegetated bank, Woodard & Curran placed the flags mainly along the existing fence line, which generally follows the observed break in slope on the riverbank and the edge of paved/developed areas at the property. The fence line provided a conservative estimate of the TOB.

Other Areas Subject to Protection under 310 CMR 10.00, *Wetland Protection Act Regulations*, identified within the Site included:

- **Bordering Land Subject to Flooding**: Area adjacent to Mother Brook identified as being within the FIRM 100-year floodplain (Zone AE), as depicted on Federal Emergency Management Agency Flood Insurance Rate Map (FIRM), Community Panel No. 250237, Panel 43, Dated July 17, 2012 (via FEMA website, 2015);
- **Bank**: Associated with Mother Brook; and
- **Riverfront Area:** Area within 200-feet of the TOB of Mother Brook.

These resources are also subject to the Town of Dedham's General Wetlands By-Law and accompanying regulations. Additionally, Dedham By-Law rules specify that a 200-foot buffer zone is associated with the annual high water level of Mother Brook, interpreted by Woodard & Curran for this property as coincident with the TOB.

On August 5, 2015, Woodard & Curran submitted an Abbreviated Notice of Resource Delineation application to the Town of Dedham Conservation Commission to confirm the delineation of the natural resource areas identified on Site. The Dedham Conservation Commission approved the natural resource area delineations on September 3, 2015.

2.3 CRITICAL AREAS

Woodard & Curran reviewed the Massachusetts Geographic Information System (MassGIS) data files to determine whether any additional sensitive resources or protected areas existed within the vicinity of the Site. From this review, the following was determined:

- The Massachusetts Endangered Species Act (MESA) protects rare species and their habitats by prohibiting the taking of any plant or animal species listed as Endangered, Threatened, or Special Concern by the Massachusetts Division of Fisheries & Wildlife. MESA review is required by the Natural Heritage & Endangered Species Program (NHESP) for projects or activities located within a Priority or Estimated Habitat of Rare Species. Review of the MassGIS data shows that there are no Priority or Estimated Habitats within the project area; therefore, the project is not subject to MESA review. A copy of the NHESP Habitat Map for the Site is included in **Appendix C**.
- Per the MassGIS data, the proposed project is not located within any Areas of Critical Environmental Concern (ACEC). A copy of the ACEC Habitat Map for the Site is included in **Appendix C**.
- The Massachusetts Stormwater Handbook defines Outstanding Resources Waters and Recharge Areas for Public Water Supplies as critical areas. Review of MassGIS data indicated no Outstanding Resources Waters are located within the Site.

2.4 HISTORICAL PROPERTIES

To determine if there are any potential historic structures located on the Site, a Project Notification Form was submitted to the Massachusetts Historical Commission (MHC) requesting review of the project area. A response from the MHC was received on December 2, 2015, indicating the project is unlikely to affect significant historical or archeological resources; a copy of the MHC response is included in **Appendix C**.

2.5 SITE TOPOGRAPHY

As previously described, the Site is separated into different two areas; the material drop-off area and the off-loading and material transfer area. The topography of the material drop-off area, located in the southern section of the Site, ranges from elevation 95 at the southern driveway from Incinerator Road and slopes up to elevation 106 at the receiving bay doors of the transfer building. The topography of the material transfer area, located along the western and northern sides of the Site, is relatively level with an elevation of 89 at the western driveway and off-loading area at the backside of the building, sloping down to elevation 86 along the bank of Mother Brook. Concrete retaining walls and steep grass slopes create the change in topography between the material drop-off area and the material transfer area.

3. EXPANDED ALTERNATIVES ANALYSIS

3.1 EVALUATION OF PRELIMINARY ALTERNATIVES

The Town contracted with Woodard & Curran to develop a conceptual building footprint and site layout for a future solid waste transfer station and recycling center that expands waste stream operations on the existing transfer station and considers current and future market opportunities and regulatory requirements. As part of the preliminary evaluation for expanding operations at the transfer station, three alternatives were explored:

- No Change to the Existing Facility;
- Expanded Transfer Operations – expand the building and site to accommodate additional tonnage of MSW, residential recycling, and C&D without processing; and
- MSW Transfer with C&D Processing – provide a building to transfer additional tonnage of MSW, process C&D into recyclable products, and manage organic wastes.

Upon review of the conceptual expansion plans and analysis prepared by Woodard & Curran, the Town decided to proceed with the option of expanding the transfer station operations from the current 250 tons per day to an annual average of 500 tons per day. The annual average of 500 tons per day would allow for the transfer of up to 156,000 tons annually (500 tons per day x 6 days per week x 52 weeks per year = 156,000 tons per year). In order to meet this annual parameter, a maximum daily peak of 750 tons per day is proposed. The following table provides a description of the reasoning for the selected alternative:

Table 3-1: Town of Dedham Transfer Station and Recycling Center Preliminary Alternatives Analysis

No.	Alternative	Alternative Analysis
1	No Change to Existing Facility	Alternative 1 was not selected because it does not increase capacity for the region and will not provide the means for improving traffic safety, upgrading environmental conditions, or providing enhanced residential drop-off capabilities.
2	**Expanded Transfer Operations**	**Alternative 2 was selected because it will increase capacity for the region, enhance residential recycling, and improve the safety and environmental conditions of the site.**
3	MSW Transfer with C&D Processing	Although Alternative 3 would provide the increase in capacity, it was not selected for the following reasons: • Significant increase in anticipated total construction cost due to the additional processing equipment required; • Anticipated increase in truck traffic; and • Limited space on the small acreage site.

The following sections outline the site layouts considered for the Expanded Transfer Operations Alternative and the vehicle circulation patterns evaluated for each site layout.

3.2 EVALUATION OF ALTERNATIVE SITE LAYOUTS

Three site layouts were evaluated for the Expanded Transfer Operations Alternative. Based on discussions with both the Town and local transfer station operators, the layouts were developed to incorporate the following parameters:

- Minimum building footprint of 10,000 square feet;
- Four drop-off bays (three for commercial and one for residential drop-off);
- One or two off-loading bays for trailers;
- Minimum grade change of 10 feet between drop-off and off-loading areas;
- A minimum of one truck weigh scale;
- On-site storage for empty trailers; and
- Roll-off containers for residential drop-off.

3.2.1 Expanded Transfer Operations Alternative - Site Layout A

This layout includes a 70-ft wide by 140-ft long (10,150 sf) transfer building with drop-off bays on the south side and two off-loading bay on the east and west sides towards the back the building (north side). A truck weigh scale is proposed on the east side of the building and empty trailer storage is proposed on the west side of the site. Two residential drop-off roll-off containers are provided on the north side. Retaining walls are proposed along the east limit of the site and internal to the site to facilitate the required grade changes.

Figure 3-1: Transfer Station Alternative Site Layout A

3.2.1.1 Evaluation of Vehicle Circulation for Site Layout A

Trailers and drop-off trucks enter the site via the eastern driveway entrance, travel counterclockwise around the site and exit via the western driveway. Drop-off is located along the front of the building (south side) and the two off-loading bays are located on the east and west side towards the back of the building as illustrated below:

Figure 3-2: Transfer Station Alternative Site Layout A, Vehicle Circulation

Attributes of Vehicle Circulation:

- All vehicles moving in the same direction around the site, reducing the potential of vehicle congestion.
- Dedicated space for empty trailer storage and movement.
- Drop-off trucks reverse into drop-off bay; no blind-side turns required.
- Space for queuing of trailers on-site.

3.2.2 Expanded Transfer Operations Alternative - Site Layout B

This layout includes an 82-ft wide by 146-ft long (12,180 sf) transfer building with drop-off bays on the north side and one off-loading bay on the west side towards the front the building (south side). A truck weigh scale, scale house is proposed on the east side of the building, and empty trailer storage is provided in front of the building. Three residential drop-off roll-off containers are also provided on the north side. Retaining walls are proposed along the east and north limits of the site and next to the drop-off bays.

Figure 3-3: Transfer Station Alternative Site Layout B

3.2.2.1 Evaluation of Vehicle Circulation Alternatives for Site Layout B

Three different alternative vehicle circulation patterns were evaluated for the *Site Layout B*. These vehicle circulation patterns are outlined in the following subsections.

3.2.2.1.1 Vehicle Circulation Alternative 1

Trailers and drop-off trucks enter the site via the eastern driveway entrance, travel counterclockwise around the site and exit via the western driveway. Drop-off is located along the backside of the building and off-loading is located on the west side of the building as illustrated below:

Figure 3-4: Transfer Station Alternative Site Layout B, Vehicle Circulation Alternative 1

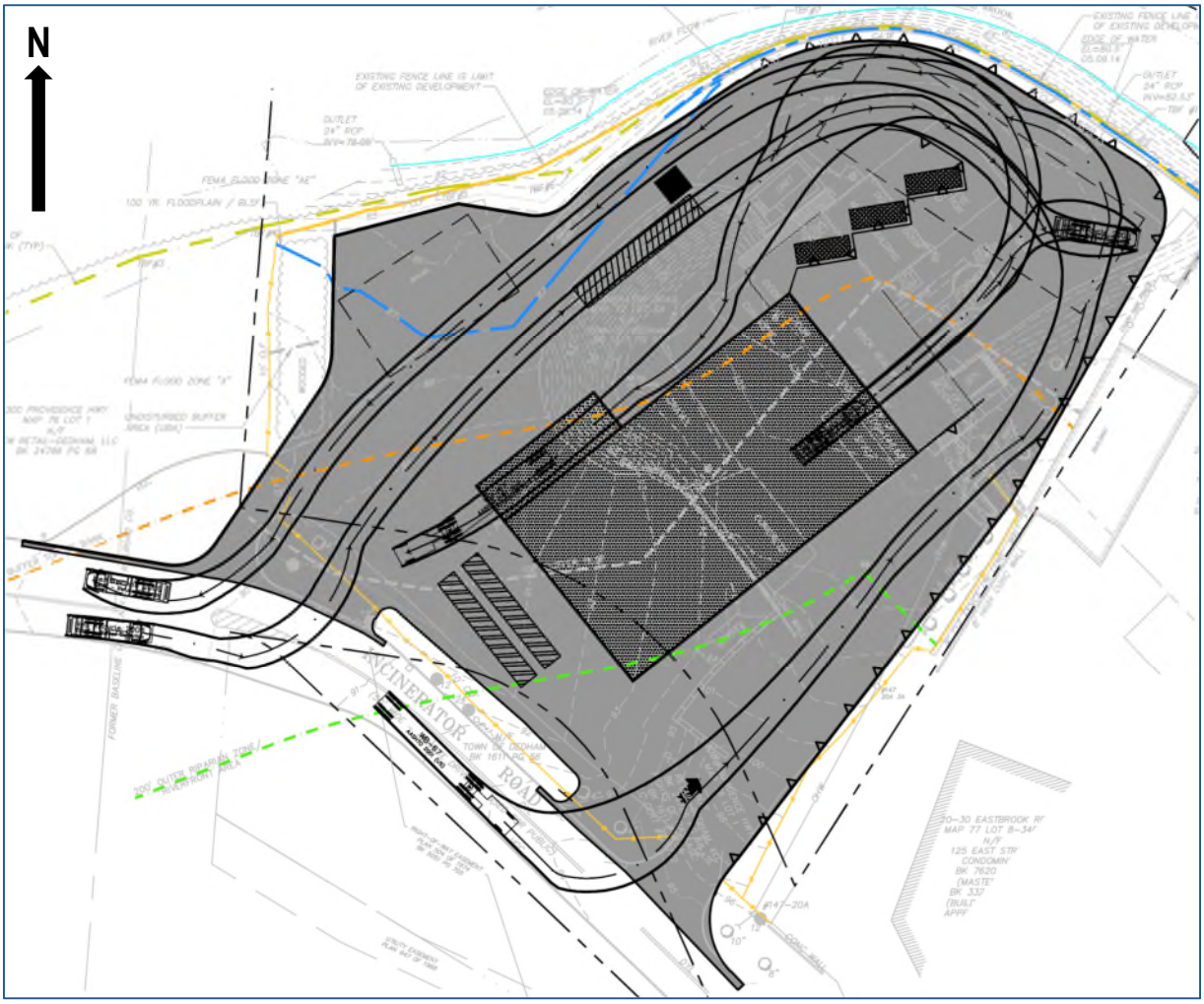
Attributes of Vehicle Circulation Alternative 1:

- All vehicles moving in the same direction around the site, reducing the potential of vehicle congestion.
- Dedicated space for empty trailer storage and movement.
- Drop-off trucks reverse straight into drop-off bay; no blind-side turns required.
- Space for queuing of trailers on-site.

3.2.2.1.2 Vehicle Circulation Alternative 2

Drop-off trucks enter and exit the site via the western driveway. Trailers enter the site via the eastern driveway, travel counterclockwise around the site and exit via the western driveway. Drop-off is located along the backside of the building and off-loading is located on the west side of the building as illustrated below:

Figure 3-5: Transfer Station Alternative Site Layout B, Vehicle Circulation Alternative 2



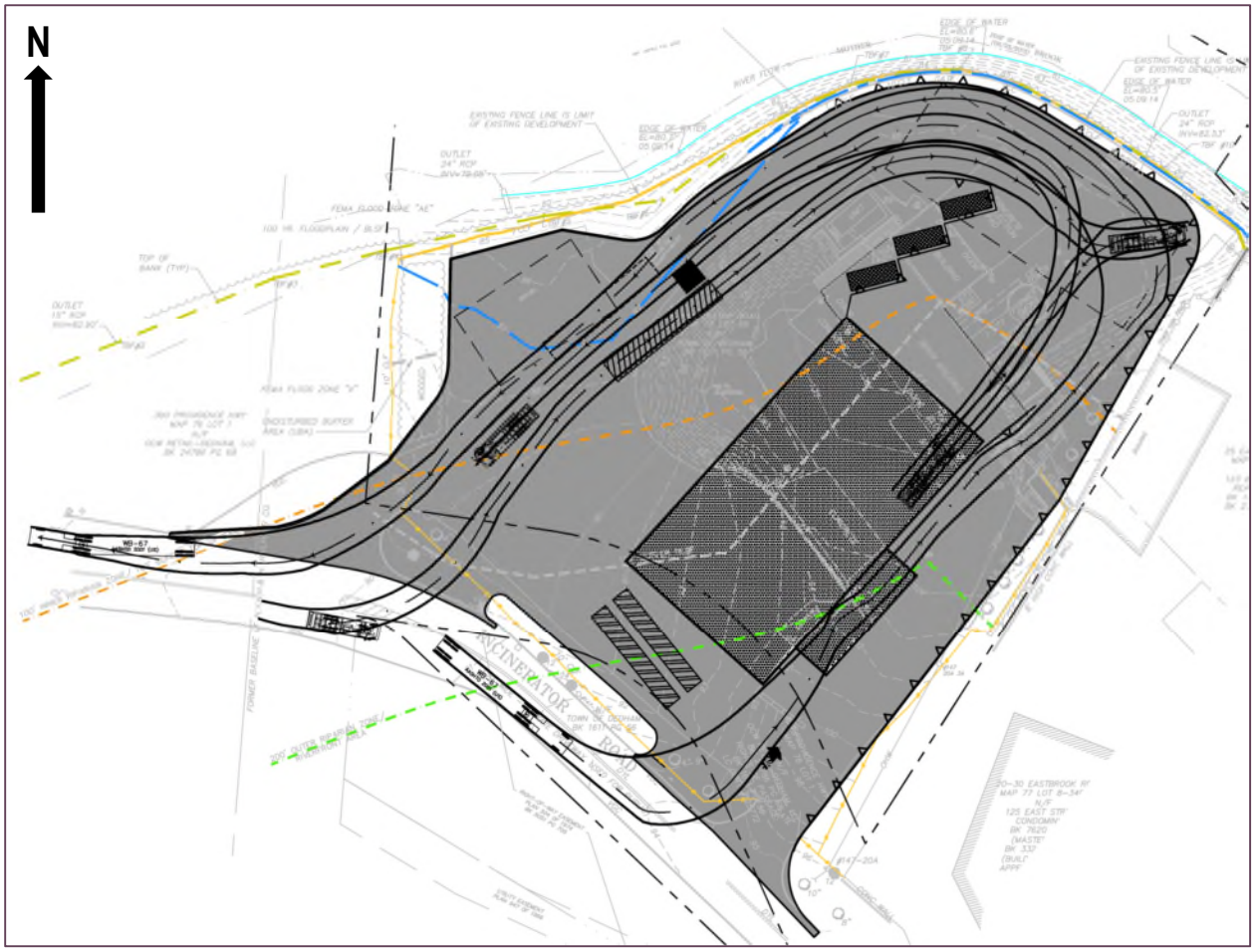
Attributes of Vehicle Circulation Alternative 2:

- Drop-off trucks enter and exit the site from the western portion of the site.
- Trailers enter the site via the eastern driveway.
- Dedicated space for empty trailer storage and movement.
- Potential for vehicle congestion, creating a safety hazard.
- Trailers crossing in front of truck scale and trucks reversing direction in drop-off area, creating safety hazards.
- Requires drop-off trucks to perform a reverse blind-side turn, which creates a safety hazard.

3.2.2.1.3 Vehicle Circulation Alternative 3

Drop-off trucks enter and exit the site via the western driveway. Trailers enter the site via the eastern driveway, travel counterclockwise around the site and exit via the western driveway. Drop-off is located along the backside of the building and off-loading is located on the east side of the building as illustrated below:

Figure 3-6: Transfer Station Alternative Site Layout B, Vehicle Circulation Alternative 3



Attributes of Vehicle Circulation Alternative 3:

- Drop-off trucks enter and exit the site from the western portion of the site.
- Trailers enter the site via the eastern driveway.
- Potential for vehicle congestion, creating a safety hazard.
- Trucks reversing direction in drop-off area, which can create a safety hazard.
- Requires drop-off trucks to perform a reverse blind-side turn, which can create a safety hazard.
- Limited on-site queuing for trailers, which may affect adjacent intersections on Incinerator Road.

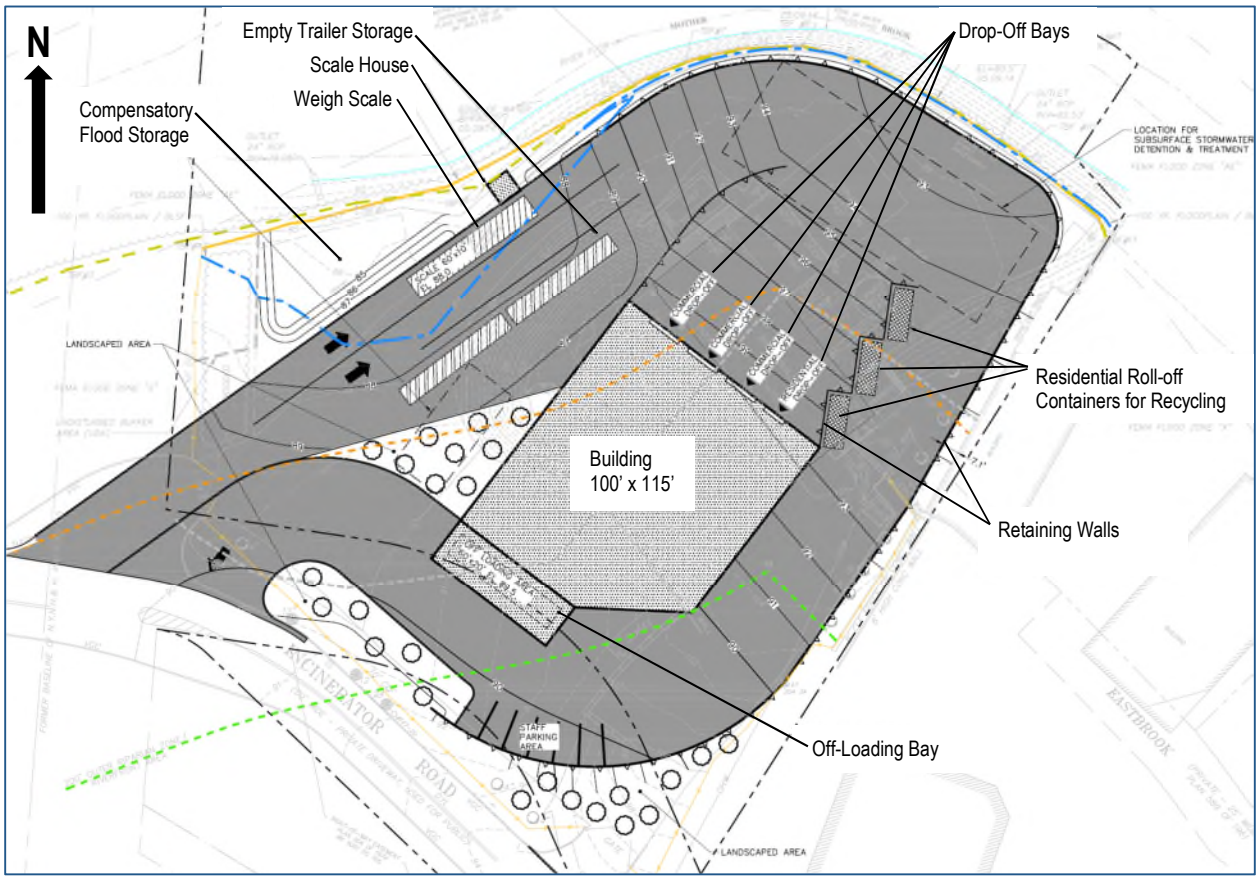
3.2.2.2 Selected Vehicle Circulation Alternative for Site Layout B

Based on the review of the three vehicle circulation alternatives, *Vehicle Circulation Alteration 1* was determined to be the preferred vehicle circulation pattern for *Site Layout B* because all vehicles travel around the site in the same counterclockwise direction, reducing potential for vehicle congestion and eliminating safety concerns with trailers crossing in front of oncoming traffic.

3.2.3 Expanded Transfer Operations Alternative - Site Layout C

This layout includes a 100-ft wide by 115-ft long (12,140 sf) transfer building with drop-off bays at the back of the building (north side) and one off-loading bay at the front the building (south side). A truck weigh scale, scale house, and empty trailer storage is proposed on the west side of the building. Three residential recycling roll-off containers are also provided on the north side. Retaining walls are proposed along the east and north limits of the site and next to the drop-off bays.

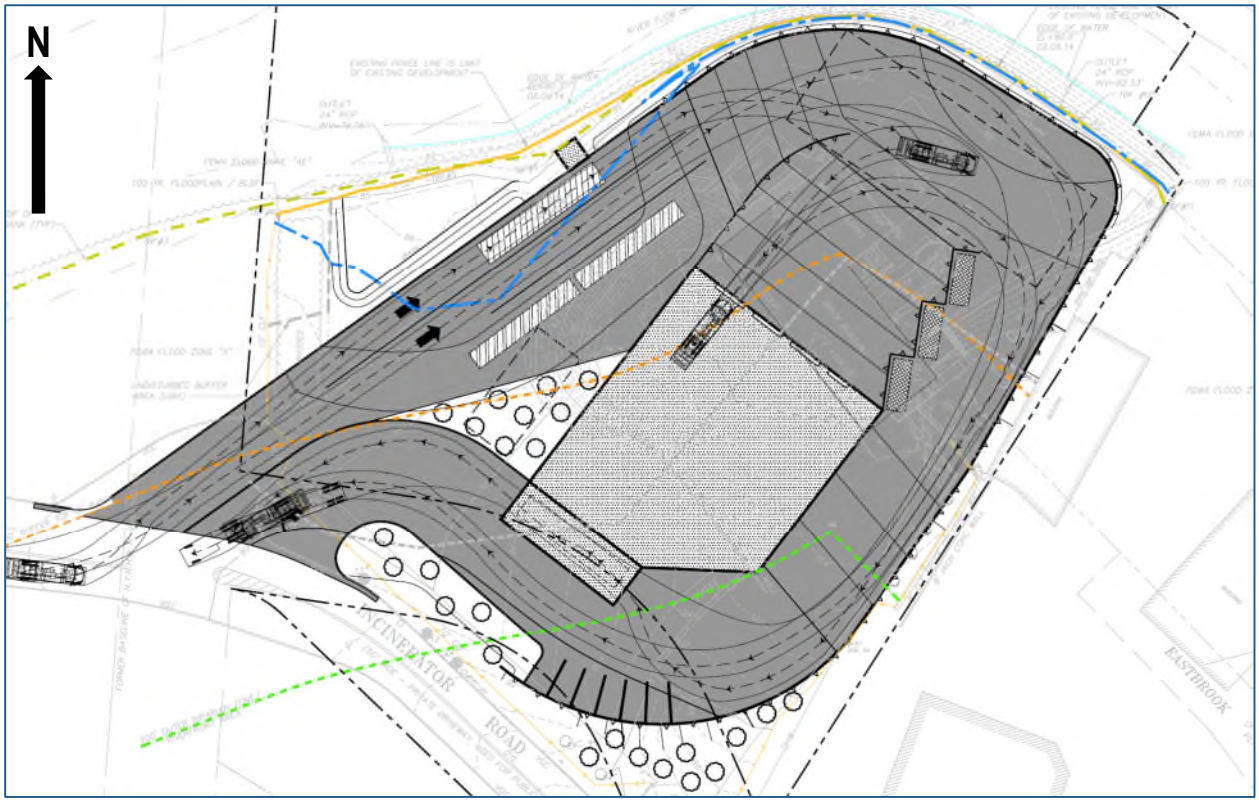
Figure 3-7: Transfer Station Alternative Site Layout C



3.2.3.1 Evaluation of Vehicle Circulation for Site Layout C

Trailers and drop-off trucks enter the site via a single western driveway entrance and travel clockwise around the site. Drop-off is located along the backside of the building and off-loading is located along the front of the building as illustrated below:

Figure 3-8: Transfer Station Alternative Site Layout C, Vehicle Circulation



Attributes of Vehicle Circulation:

- All vehicles moving in the same direction around the site, reducing the potential of vehicle congestion.
- Dedicated space for empty trailer storage and movement.
- Requires drop-off trucks to perform a reverse blind-side turn, which can create a safety hazard.
- Significant space for queuing of trailers on-site.

3.3 SELECTED SITE LAYOUT

Based on the review of the three site layout alternatives, *Site Layout C* was determined to be the preferred layout because of the increased building width (allowing for better internal operations), the improved efficiency and safety of the residential drop-off configuration, all vehicles maneuver around the site in the same direction (reducing potential congestion) and all vehicles utilizing a single driveway entrance and exit (located away from abutting properties). This site layout is further described as part of the proposed project narrative provided in Section 4.

4. PROPOSED PROJECT

4.1 CONCEPTUAL SITE LAYOUT

The proposed upgrade for the transfer station and recycling center increases the waste handling operations to an annual average of 500 tons per day. The annual average of 500 tons per day would allow for the transfer of up to 156,000 tons annually (500 tons per day x 6 days per week x 52 weeks per year = 156,000 tons per year). A maximum daily peak of 750 tons per day is proposed to meet this annual average parameter.

The proposed upgrade will be located on the existing Site, and therefore, will require the demolition of all existing site features including the existing building, retaining walls, pavement, and fencing. The waste handling area of the proposed transfer building, including the material drop-off area and off-loading area, will be located within the limits of the existing waste handling area. This will ensure the proposed waste handling operations will be no closer to adjacent existing sensitive human and environmental receptors and property boundaries than the existing conditions. The proposed 12,140 square foot building will be orientated with four commercial and residential waste receiving bays in the back (north side) and one off-loading area in the front (south side); the transfer building will be sized so that all waste unloading, sorting and loading activities will occur within the building interior. The waste will be unloaded onto the building's interior tipping floor where it will be sorted, stored, and loaded into a transfer trailer.

A retaining wall, ranging from one to twelve feet in height, is proposed along the eastern and northern edges of the Site. Retaining walls are also proposed to extend from the backside of the transfer building to help facilitate the required elevational changes between the material drop-off area and the off-loading area. Exterior roll-off containers for recycled material drop-off by residents will be located on the lower side of these retaining walls. A vehicle scale and scale house are proposed on the western side of the transfer building for weighing incoming waste handling vehicles. An optional scale is proposed in the off-loading bay for weighing transfer trailers prior to leaving the Site. Empty transfer trailers will also be stored on the western part of the Site, adjacent to the vehicle scale. All vehicles will enter the Site via a western driveway entrance from Incinerator Road, travel clockwise around the Site, and exit via the same driveway. A Conceptual Site Plan has been included in **Appendix E.** Figures illustrating the proposed internal circulation for the waste handling vehicles, transfer trailers, and roll-off trucks are provided in **Appendix F** and a cut and fill plan for the proposed grading changes is provided in **Appendix G**. These upgrades will improve traffic flow and site safety, enhance residential drop-off capabilities, and provide overall positive environmental benefits for the site.

Demolition of the existing transfer station building will result in the removal of the existing cell tower. Since the Site is located in the Wireless Communications Service Overlay District, it is anticipated a similar cell tower will be reconstructed on the new transfer building as part of the proposed project.

4.2 STORMWATER MANAGEMENT

Currently, the existing transfer station site utilizes two stormwater management systems to collect and treat the stormwater runoff before it is discharged to Mother Brook. The two stormwater management systems, located at the northern and western edges of the Site, are "Stormceptor STC" treatment units that remove free oils and suspended solids from the stormwater runoff prior to discharge. Due to the proposed revisions to the site topography and the slight increase in impervious area, these stormwater management systems will be removed and upgraded as part of the transfer station and recycling center upgrade.

The proposed Project will be designed to meet the standards of the MassDEP "Massachusetts Stormwater Handbook," including the following:

- Stormwater management systems will be designed so that post-development, peak discharge rates do not exceed pre-development, peak discharge rates.
- Stormwater management systems will be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS).
- All handling for MSW and C&D Debris will be conducted interior to the building structure, thereby minimizing exposure of pollutant runoff from precipitation.
- The Site is predominately a re-development site, and will be designed such that the existing development areas is not significantly expanded by the construction of the new transfer station and recycling center.

Due the limited acreage of the Site, it is anticipated that stormwater runoff will be managed by proprietary treatment and detention systems located below the proposed finish grade. These systems will be located along the western edge of the Site. Since the Site contains a transfer station, it is considered a Land Use with Higher Pollutant Loads and will be designed to meet Standard 5 of the Massachusetts Stormwater Handbook.

Woodard & Curran completed preliminary calculations and developed a conceptual stormwater management plan for the proposed Project. The water quality volume for the 2.34-acre, 62% impervious Site is approximately 315 cubic yards. Based on this water quality volume, Woodard & Curran identified and sized the following two potential propriety treatment systems for the proposed Project:

Table 4-1: Potential Proprietary Treatment Systems for Dedham Transfer Station

Treatment System (Manufacturer)	Description	Model/Size (based on WQV)	Total Suspended Solids (Removal %)	Total Phosphorus (Removal %)
Stormwater Management StormFilter (Contech)	Treatment technology featuring rechargeable, self-cleaning, media-filled cartridges.	8' diameter manhole with (8) 27" StormFilter cartridges with PhosphoSorb® (filter media that targets high levels of phosphorus removal)	89%	82%
Jellyfish Filter (Contech)	Treatment technology featuring high surface area and high flow rate membrane filtration.	Model JF10123 10' diameter structure with (12) high flow cartridges and (3) draindown cartridges	89%	59%

Both of the proprietary treatment systems identified in the table above provide a high level of total phosphorus removal, which is an impairment of Mother Brook. Additionally, as required per Standard 5 of the Stormwater Management Handbook, each of the proprietary treatment systems have completed the TARP verification process.

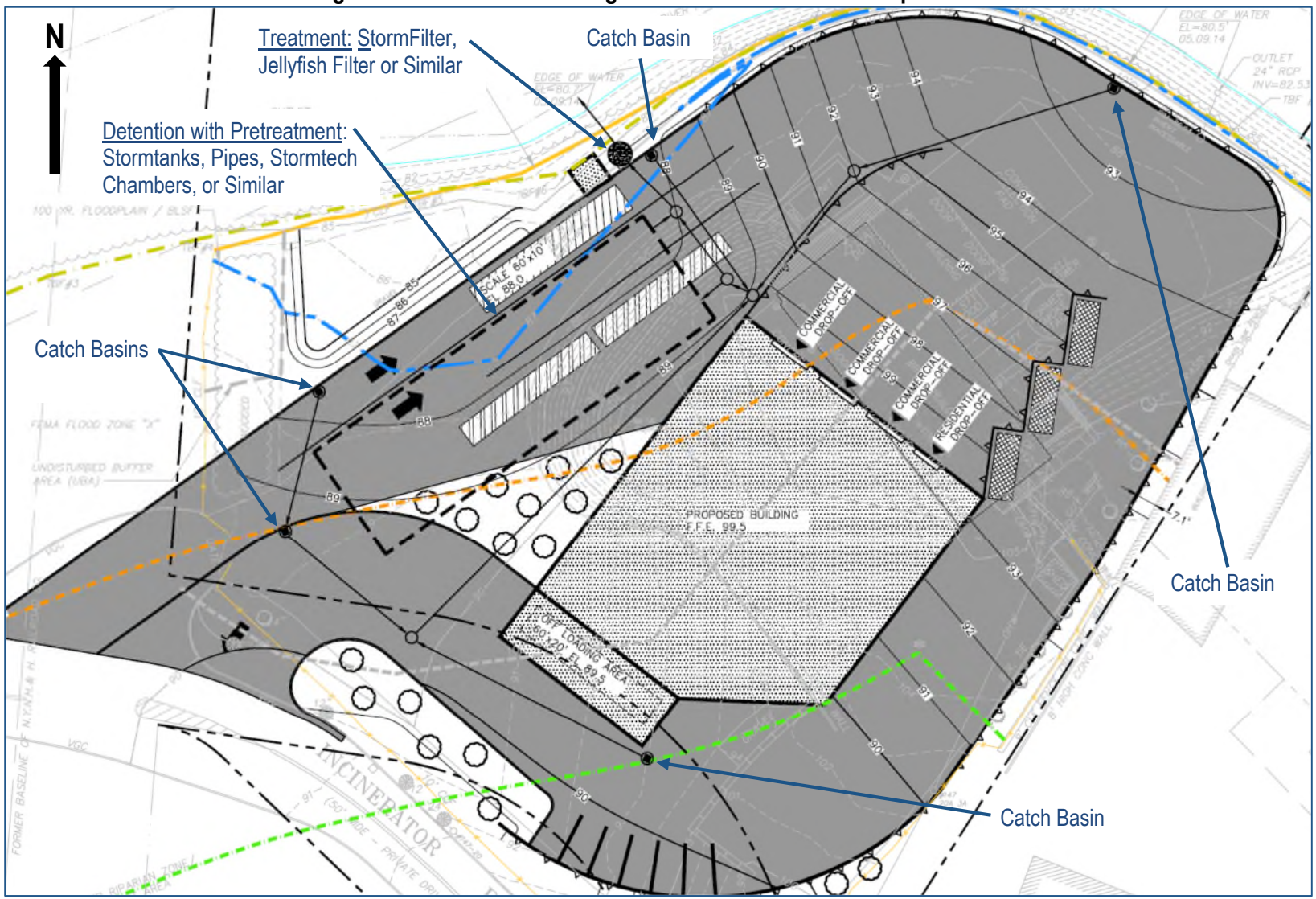
In addition to the proposed proprietary treatment systems, subsurface detention with pretreatment is proposed to ensure post-development, peak discharge rates do not exceed pre-development, peak discharge rates. Several potential detention systems with pretreatment have been identified in the following table:

Table 4-2: Potential Detention Systems with Pretreatment for Dedham Transfer Station

Detention System (Manufacturer)	Pretreatment System (Manufacturer)
Stormtank (Brentwood Industries)	**CDS or Vortsentry** (Contech)
Pipe (Contech)	
Stormtech Chambers (ADS)	**Isolator Row** (ADS)

The figure on the following page illustrates the conceptual stormwater management and treatment design for the proposed Project.

Figure 4-1: Stormwater Management and Treatment Conceptual Plan



4.3 SENSITIVE RECEPTORS AND RESOURCE AREA IMPACTS

The proposed Conceptual Site Plan has been developed to minimize impacts to the existing resource areas identified within the Site. The proposed transfer building, material drop-off area and off-loading area will all be located within the limits of the current waste handling area, which ensures the proposed waste handling operations will be no closer to the adjacent sensitive human and environmental receptors and property boundaries than the existing conditions. The current waste handling area was defined during a meeting with the MassDEP. A comparison of the current waste handling area to the proposed waste handling area is provided in the table below:

Table 4-3: Waste Handling Areas Comparison

	Current Waste Handling Area	Proposed Waste Handling Area
Size	25,043 SF	12,139 SF
Minimum Distance to Natural Resource Area	27.6 FT	74.5 FT
Minimum Distance to Existing Sensitive Receptors	219.7 FT	233.8 FT

The following subsections describe the anticipated impacts to the natural resources areas identified within the Site.

4.3.1 Bank

The proposed Project will not affect or change the bank of Mother Brook.

4.3.2 Bordering Land Subject to Flooding

Approximately 4,350 square feet of the existing Site is located within a floodplain. The proposed conceptual site layout has been designed to slightly raise the grades of the existing developed gravel area located within the floodplain. It is anticipated this area will be paved and used for the vehicle scale and vehicle queuing as part of the transfer station and recycling center upgrade, requiring a slight increase (less than one-foot) in elevation within the floodplain. Some existing flood storage will be loss, and therefore, compensatory flood storage is proposed between the existing gravel area and Mother Brook. Compensatory flood storage will be sized at a 2:1 ratio of the altered resource area in accordance with the Town of Dedham Conservation Commission Rules and Regulations.

4.3.3 Riverfront Area

The bank of Mother Brook is located along the northern and eastern sides of the Site, and therefore, a large portion of the Site (approximately 60,818 square feet) is located within the Riverfront Area. This Riverfront Area is currently developed as part of the existing transfer station, and therefore, the proposed Project will be considered redevelopment of the Riverfront Area. Since all of the waste handling activities will be located within the limits of the existing waste handling area, the waste handling operations will not be located any closer to the Mother Brook.

4.4 GREENHOUSE GAS EVALUATION

Tech Environmental, Inc. (Tech) has prepared a qualitative greenhouse gas (GHG) evaluation for the upgrade of the Town of Dedham Transfer Station and Recycling Center. Presented below is a summary of the elevation of GHG emissions.

A project is subject to the MEPA Greenhouse Gas (GHG) Emissions Policy, if the project is required to prepare an Environmental Impact Report (EIR). This project does not trigger any MEPA Mandatory EIR thresholds, either for solid waste, traffic or other state review categories; therefore, a quantification of project-related GHG emissions is not required. However, MEPA does encourage that proponents of a project should attempt to qualitatively identify sources and types of GHG emissions in the ENF filing.

The 2.34-acre site is currently occupied by a 250-tpd transfer station. The existing transfer station will be demolished and replaced with a new transfer station that will have a yearly average of 500-tpd and peak daily tonnage up to 750-tpd. The new transfer station will take in combined C&D and MSW. The proposed building will have up to 12,000 square feet of area (single story), which will include a small restroom and a small internal office space.

The potential stationary sources associated with the MSW transfer operations include emissions from electrical use in heating and ventilation of the transfer station. Other stationary and quasi-stationary sources typically found inside a transfer station building include an excavator, loader, and skid steer. The potential mobile sources accessing the site will include waste hauler trucks and employee vehicles. It is projected that 85 trucks per day will be dropping off waste and 28 trucks per day will be removing waste offsite. There will be four employees working at the new transfer station. Any impacts on traffic will be minimized by the well-planned location in a commercial area off Washington Street via Route 1 and Interstate 95.

The Proponent has made a commitment to minimize GHG emissions from the Project's stationary and mobile sources. The Project is still in the permitting phase and only very preliminary information is available for the Project building components. As such, the Proponent has made commitments to mitigating technologies commensurate with that state of preliminary design. A summary of the proposed mitigation measures is presented in the following sections.

4.4.1 Transportation Demand Management

Design Project to Support Alternative Transportation to the Site – The Forest Hills MBTA Station is located approximately one mile from the Project site and provides service to the Orange Line rapid rail transit line. Access to the Forest Hills Station is via #34 bus service at 106 Washington Street for employees.

4.4.2 Site Design Mitigation Measures

The Project will adopt all reasonable and feasible site design mitigation measures. The Project is committed to the following mitigation measures:

- *Sustainable Development Principles* – The Project conserves land by reusing an existing transfer station site.
- *Minimize Energy Use Through Building Orientation* – A large portion of the building will have sides facing south and west.
- *Best Practices for Stormwater Design* – The Proponent proposes to mitigate these potential impacts by constructing a new stormwater management system that meet current DEP Stormwater Management requirements, which utilizes Best Management Practices (BMP).
- *Low-Maintenance Landscape Plantings* – Landscape areas will be planted with low-maintenance species and will not be a significant source of water use.

4.4.3 Building Design and Operation Mitigation Measures

The Project will adopt all reasonable and feasible building design and operation mitigation measures. The Project is committed to the following mitigation measures:

- *Energy Efficient Windows and Building Envelope* – Building envelope insulation will meet or exceed the Code. Wall insulation will be R13+R7.5ci, which will meet Code. Roof insulation will be R-30, which will exceed Code. Window glass type glass will be double-pane, low-e glass, U value = 0.29 for the man-door and in the office area, which exceeds Code.
- *Cool Roofs* – Nonabsorbent colored roof materials will be used on the building.
- *Higher-Efficiency HVAC Heating Systems* – There is no heating or cooling for transfer stations. A small HVAC heating system for the office space only will exceed Code and will have an efficiency of 92%.
- *Energy Efficient Exterior Lighting* – Energy efficient LED fixtures will be used to light the parking lot.
- *Occupancy Lighting Control Sensors* –Occupancy sensors will be installed in the office and restrooms.
- *Use Water Conserving Fixtures and Practices* – Restrooms will use low-flow faucets in wash sinks and low-flow toilets and urinals.
- *Energy STAR Appliances* – Energy STAR equipment and appliances will be used in the building.
- *Recycle Materials* – The Project will provide adequate space for employees to recycle materials, such as recycle cans, bottles, cardboard, and paper in the recycling building.
- *On-Site Renewable Energy* – The Proponent affirms its commitment to an area on the building with a flat roof have "solar-ready" space available for a possible third-party photo-voltaic (PV) installation.

4.4.4 Summary of Mitigation Measures

Table 4-4 presents an overall summary of the 14 mitigation measures that the Proponent is committed to for this project.

Table 4-4: Town of Dedham Transfer Station Greenhouse Gas Mitigation Measures

Committed Mitigation Measure	Part of Project Design
Design project to support alternative transportation to the Site	✓
Sustainable development principles	✓
Minimize energy use through building orientation	✓
Use Best Practices for stormwater design	✓
Locate new buildings near transit	✓
Design water efficient landscaping	✓
Energy efficient windows and roof insulation	✓
Cool roof construction	✓
High efficiency heating system for office space only	✓
Energy efficient LED fixtures will be used to light the parking lot	✓
Occupancy sensors for lighting in office and restrooms	✓
Water conserving fixtures in restrooms	✓
Energy STAR appliances	✓
Design for waste reduction (i.e., adequate space for employees to recycle materials, such as recycle cans, bottles, cardboard and paper in the recycling building)	✓
"Solar-ready" space available for a possible third-party photo-voltaic (PV) installation	✓

4.5 NOISE AND ODOR FUTURE EVALUATIONS

Potential nuisance conditions that could occur during the construction and/or operation of the proposed transfer station and recycling center upgrades will be evaluated as part of the future design and permitting activities including the Site Assignment Process and MassDEP Authorization to Construct process. One potential nuisance condition to be evaluated is noise. At transfer stations, nuisance noises may typically be generated from the operation of the facility equipment and vehicles. MassDEP does not regulate sound from motor vehicles accessing the site or the equipment backup notification alarms as these are safety features required by the Occupational Safety and Health Administration (OSHA). Therefore, best management practices and mitigation measures will be designed and implemented for the sources that may generate sound during the operation of the proposed facility.

A complete noise study will be completed as part of the future Board of Health Site Assignment modification application; a copy of the proposed Nosie Study Scope of Work has been included in **Appendix H**. The conceptual upgrades proposed for the transfer station and recycling center currently incorporated some best management practices to reduce nuisance noise conditions; backing-up of the tractor trailers into the off-loading bays has been eliminated as part of the proposed upgrades, reducing the use of the back-up alarms. A complete evaluation and detailed design of additional noise mitigation measures will be developed as part of the MassDEP Authorization to Construct (ATC) permit application. Given the proximity to abutting properties, comprehensive mitigation of noise impacts will be a key design consideration for this project.

Odor is another potential nuisance condition that is anticipated to be evaluated as part of the Board of Health Site Assignment modification application. Development of best management practices, such as required doors to be closed, or potential mitigation measures, such as misting systems, will be designed as part of the MassDEP ATC permit application. Similarly, given the proximity to abutting properties, comprehensive mitigation of odor impacts will be a key design consideration for this project.

As part of the final transfer station and recycling center design, an Operations and Maintenance (O&M) Plan will be developed in accordance with 310 CMR 19.00 and will be reviewed and approved by MassDEP as part of the Authorization to Construct Permit. The O&M plan will include best management practices and procedures required to prevent odor, noise and other nuisance conditions from developing. The Town is committed to ensuring these O&M practices will be implemented as part of the long-term operation of the facility. That will include incorporating the O&M Manual into local permitting process, as well as into the procurement process of future facility operators.

5. TRAFFIC

A Traffic Study was completed by BETA Engineering for the proposed upgrade to the Town of Dedham Transfer Station and Recycling Center. A copy of the complete Traffic Study has been included in **Appendix I**.

6. STATUS OF LOCAL AND STATE PERMITS

6.1 STATUS OF LOCAL AND STATE PERMITS

The Project is currently in the early conceptual design phase, and therefore, no local or state permits have been obtained. Upon the conclusion of this MEPA review, a Site Assignment minor modification application will be completed and submitted to the Town of Dedham Board of Health in accordance with 310 CMR 16.00, *Site Assignment Regulations for Solid Waste Facilities*. Upon approval of the Site Assignment minor modification, preliminary design of the transfer station and recycling center upgrade will begin and the following local permits will be obtained:

- Town of Dedham Conservation Commission - Order of Conditions
- Town of Dedham - Site Plan Approval and Special Use Permit

After local permitting is complete, final design and construction of the transfer station and recycling center upgrade will be completed and the following state permits will be obtained:

- Massachusetts Department of Environmental Protection - Authorization to Construct (ATC)
- Massachusetts Department of Environmental Protection - Authorization to Operate (ATO)

6.2 ANTICIPATED PROJECT AND CONSTRUCTION SCHEDULE

Table 6-1 below presents a preliminary project and construction schedule for the proposed transfer station upgrade; this schedule is subject to change based on actual timelines of all permits approvals.

Table 6-1: Town of Dedham Transfer Station and Recycling Center Upgrade Anticipated Project Schedule

Project Phase	Schedule
Site Assignment Minor Modification	April 2017 to August 2017
Preliminary Design and Local Permitting (Order of Conditions, Site Plan Approval, and Special Use Permit)	August 2017 to April 2018
MassDEP Permitting (ATC)	April 2018 to September 2018
Final Design and Construction	September 2018 to December 2019
MassDEP Permitting (ATO)	December 2019 to March 2020

APPENDIX A: LIST OF AGENCIES RECEIVING COPIES & PUBLIC NOTICE FORM

Environmental Notification Form Filing and Circulation Requirements

Filing Documents (Two Copies)

Secretary Matthew A. Beaton
Executive Office of Energy and Environmental Affairs (EEA)
Attn: MEPA Office
100 Cambridge Street, Suite 900
Boston, MA 02114

Department of Environmental Protection Boston Office
Commissioner's Office
One Winter Street
Boston, MA 02108
617.292.5500

DEP/Northeast Regional Office
Attn: MEPA Coordinator
205B Lowell Street
Willington, MA 01887
978.694.3200

Massachusetts Highway Department
Public/Private Development Unit
10 Park Plaza
Boston, MA 02116
857-368-4636

MHD - District #6
Walter Heller, PE
Attn: MEPA Coordinator
185 Kneeland Street
Boston, MA 02111
857.368.6100

Massachusetts Historical Commission
The MA Archives Building
220 Morrissey Boulevard
Boston, MA 02125
617.727.8470

Metropolitan Area Planning Council
Executive Directive: Marc Draisen
60 Temple Place/6th floor
Boston, MA 02111
617.451.2770

Town of Dedham – Board and Committees

Board of Selectmen
Chairman: Dennis J. Guilfoyle
Town Administration Building
26 Bryant Street
Dedham, MA 02026
781.751.9100

Planning Board
Planning Director: Richard J. McCarthy, Jr.
Town Administration Building
26 Bryant Street
Dedham, MA 02026
781.751.9241

Conservation Commission
Conservation Commission: Elissa Brown
Town Administration Building
26 Bryant Street
Dedham, MA 02026
781.751.9210

Board of Health
Health Director: Catherine Cardinale
Town Administration Building
26 Bryant Street
Dedham, MA 02026
781.751.9220

DCR Department of Conservation and Recreation
Attn: MEPA Coordinator
251 Causeway St. Suite 900
Boston MA 02114
617.626.1250

Department of Public Health (DPH)
Director of Environmental Health
250 Washington Street
Boston, MA 02115
617.624.6000

Massachusetts Water Resource Authority
Attn: MEPA Coordinator
100 First Avenue, Building 39
Charlestown Navy Yard
Boston, MA 02129
617.242.6000

Energy Facilities Siting Board
Attn: MEPA Coordinator
One South Station
Boston, MA 02110
617.305.3525

Department of Energy Resources
Attn: MEPA Coordinator
100 Cambridge Street, 10th floor
Boston, MA 02114
617.626.7300

Environmental Justice

Alternatives for Community & Environmental
Attn: Richard Juang
2201 Washington Street
Suite 302
Boston, MA 02119

City of Boston Neighborhood Services - Hyde Park
Attn: Dave McNulty
1 City Hall Square
Room 805
Boston, MA 02201

City of Boston Neighborhood Services - West Roxbury
Attn: Chris Rusk
1 City Hall Square
Room 805
Boston, MA 02201

Dedham Times – January 13, 2017

LEGAL NOTICE
PUBLIC NOTICE OF
ENVIRONMENTAL REVIEW

PROJECT: Town of Dedham Transfer Station and Recycling Center Upgrade

LOCATION: 5 Incinerator Road, Dedham, MA

PROPONENT: Town of Dedham

The undersigned is submitting an Environmental Notification Form ("ENF") to the Secretary of Energy & Environmental Affairs on or before January 17, 2017.

This will initiate review of the above project pursuant to the Massachusetts Environmental Policy Act ("MEPA", M.G.L. c. 30, s.s. 61-62l). Copies of the ENF may be obtained from: Woodard & Curran, c/o Alan Benevides, PE, 40 Shattuck Road, Suite 110, Andover, MA 01810, (866) 702-6371.

Copies of the ENF are also being sent to the Conservation Commission and Planning Board of Dedham where they may be inspected.

The Secretary of Energy & Environmental Affairs will publish notice of the ENF in the Environmental Monitor, will receive public comments on the project for 20 days, and will then decide, within ten days, if an environmental Impact Report is needed. A site visit and consultation session on the project may also be scheduled. All persons wishing to comment on the project, or to be notified of a site visit or consultation session, should write to the Secretary of Energy & Environmental Affairs, 100 Cambridge St., Suite 900, Boston, Massachusetts 02114, Attention: MEPA Office, referencing the above project

By Alan Benevides on Behalf of the Town of Dedham

Bay State Banner – January 19, 2017

LEGAL NOTICE
PUBLIC NOTICE OF
ENVIRONMENTAL REVIEW

PROJECT: Town of Dedham Transfer Station and Recycling Center Upgrade

LOCATION: 5 Incinerator Road, Dedham, MA

PROPONENT: Town of Dedham

PROJECT DESCRIPTION: The Town of Dedham is proposing to upgrade of the existing municipal solid waste and construction and demolition waste transfer station, located on Incinerator Road in Dedham, MA. The project proposes to increase the waste capacity of the facility from 250 tons per day to an annual average of 500 tons per day. Additionally, the proposed upgrades will enhance residential recycling opportunities and improve the safety and environmental conditions of the existing facility.

The undersigned submitted an Environmental Notification Form ("ENF") to the Secretary of Energy & Environmental Affairs on January 17, 2017.

This will initiate review of the above project pursuant to the Massachusetts Environmental Policy Act ("MEPA", M.G.L. c. 30, s.s. 61-62I). The purpose of MEPA is to provide opportunities for public review of the potential environmental impacts of proposed projects.

Copies of the ENF may be obtained from: Woodard & Curran, c/o Alan Benevides, PE, 40 Shattuck Road, Suite 110, Andover, MA 01810, (866) 702-6371. **Copies of the ENF are also being sent to the Conservation Commission and Planning Board of Dedham where they may be inspected.**

The Secretary of Energy & Environmental Affairs will publish notice of the ENF in the Environmental Monitor, will receive public comments on the project for 20 days, and will then decide, within ten days, if an environmental Impact Report is needed. A site visit and consultation session on the project may also be scheduled. All persons wishing to comment on the project, or to be notified of a site visit or consultation session, should write to the Secretary of Energy & Environmental Affairs, 100 Cambridge St., Suite 900, Boston, Massachusetts 02114, Attention: MEPA Office, referencing the above project

By Alan Benevides on Behalf of the Town of Dedham

El Mundo Newspaper – January 19, 2017

AVISO LEGAL
NOTIFICACION PUBLICA DE
EVALUACION AMBIENTAL

PROYECTO: Town of Dedham Transfer Station Upgrade

UBICACION: 5 Incinerator Road, Dedham, MA

PROPONENTE: Town of Dedham

DESCRIPCION DEL PROYECTO: El Town of Dedham está proponiendo mejoras a la estación de transferencia de desechos sólidos, de construcción y de demolición, ubicada en Incinerator Road en Dedham. El proyecto propone el aumento de la capacidad de la estación de 250 a 500 toneladas de desechos por día en promedio anual. Las mejoras propuestas también aumentaran las oportunidades de reciclaje residencial, y mejoraran la seguridad y las condiciones ambientales en la estación de transferencia.

Quien subscribe ha presentado una Notificación Ambiental (Environmental Notificación Form o "ENF" por sus siglas en inglés) al Secretary of Energy & Environmental Affairs el día Enero 17, 2017**.**

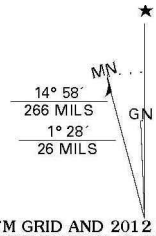
Este aviso dará comienzo a la evaluación del proyecto identificado anteriormente de acuerdo a la Ley de Política Ambiental de Massachusetts ("MEPA", M.G.L. c. 30, s.s. 61-62I). El propósito de MEPA es otorgar la oportunidad para que el público revise el impacto ambiental de los proyectos propuestos.

Copias del ENF pueden ser solicitadas a: Woodard & Curran, c/o Alan Benevides, PE, 40 Shattuck Road, Suite 110, Andover, MA 01810, (866) 702-6371.**Copias del ENF también están siendo enviadas al Conservation Commission and Planning Board de Dedham en donde pueden ser revisadas.**

Secretary of Energy & Environmental Affairs publicará el aviso del ENF en el Environmental Monitor, y recibirá comentarios del público relativos al proyecto por un periodo de 20 días, y después decidirá si un Reporte de Impacto Ambiental es necesario. Una visita al lugar del proyecto y una sesión de consulta también puede ser programada. Toda persona interesada en comentar en el proyecto, o ser notificada de la visita al lugar del proyecto o a la sesión de consulta, debe escribir al Secretary of Energy & Environmental Affairs, 100 Cambridge St., Suite 900, Boston, Massachusetts 02114, Atención: MEPA Office, referenciando el proyecto.

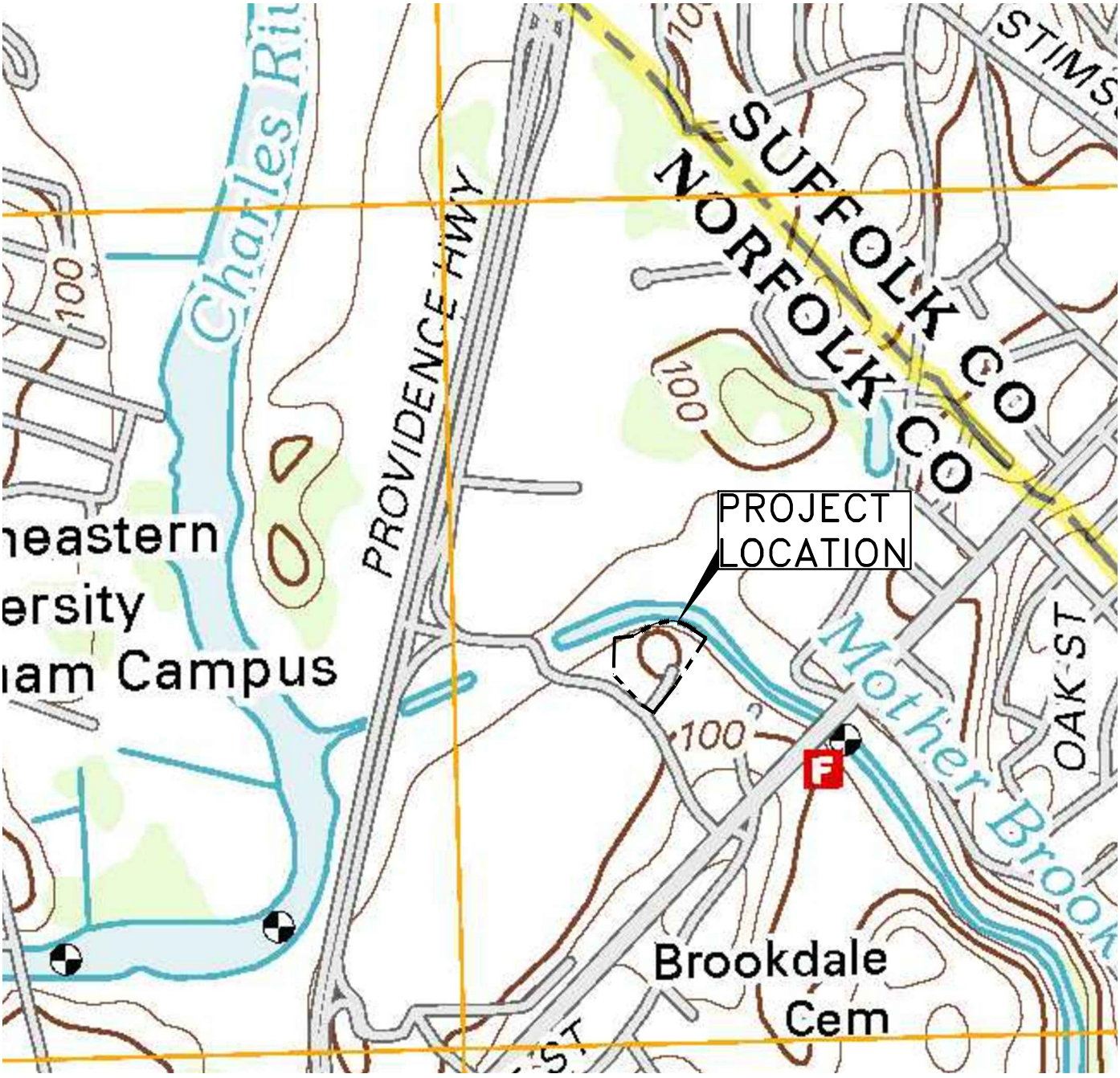
Por Alan Benevides en nombre del Town of Dedham

APPENDIX B: LOCATION MAP



UTM GRID AND 2012 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

USGS MAP PROVIDED BY
<http: //www.mass.gov/mgis/laylist.htm>



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid: Universal Transverse Mercator, Zone 19T
10 000-foot ticks: Massachusetts Coordinate System of 1983
(mainland zone)

600' 0 600' 1200'

BAR SCALE
1" = 600'
CHECK GRAPHIC SCALE BEFORE USING

WOODARD &CURRAN
980 Washington Street, Suite 325
Dedham, Massachusetts 02026
800.446.5518 | www.woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

USGS SITE LOCATION MAP

DESIGNED BY: N/A	CHECKED BY: MCM
DRAWN BY: BCM	USGS LOCATION MAP.dwg

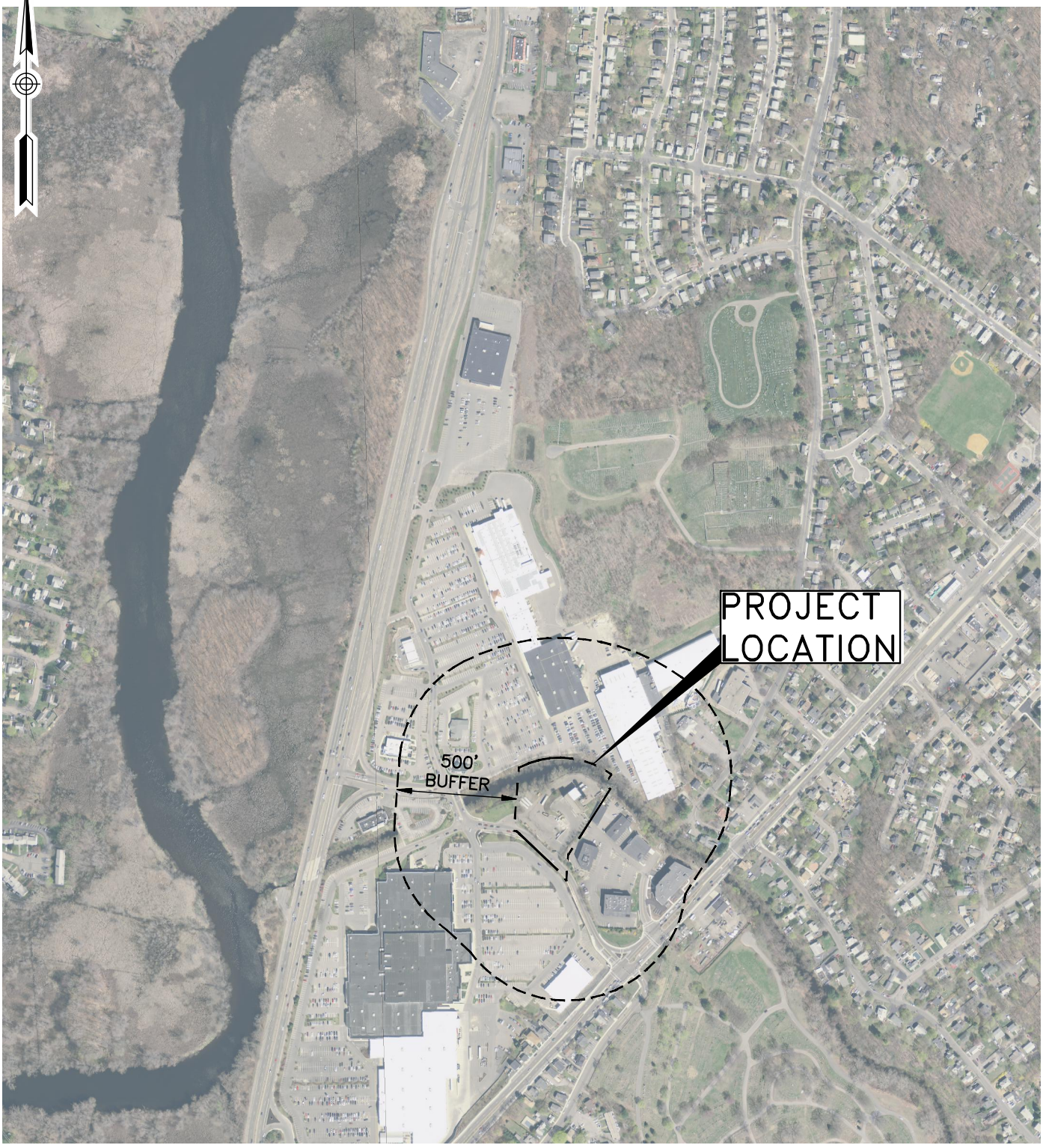
TOWN OF DEDHAM
DEPARTMENT OF PUBLIC WORKS
55 RIVER ST.

INCINERATOR ROAD
TRANSFER STATION IMPROVEMENTS

JOB NO: 227280
DATE: NOV. 2015
SCALE: 1"=600'

FIG. 1

APPENDIX C: CRITICAL AREA FIGURES AND MHC RESPONSE



PROJECT IS NOT WITHIN ANY AREA OF CRITICAL ENVIRONMENTAL CONCERN PER MASSGIS WEBSITE

AERIAL IMAGE AND ACEC DATALAYER PROVIDED BY <http://www.mass.gov/mgis/laylist.htm>

600' 0 600' 1200'

BAR SCALE
1" = 600'
CHECK GRAPHIC SCALE BEFORE USING

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980 Washington Street, Suite 325
Dedham, Massachusetts 02026
800.446.5518 | www.woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

AREAS OF CRITICAL ENVIRONMENTAL CONCERN (ACEC)

DESIGNED BY: N/A	CHECKED BY: MCM
DRAWN BY: BCM	USGS LOCATION MAP.dwg

TOWN OF DEDHAM
DEPARTMENT OF PUBLIC WORKS
55 RIVER ST.

INCINERATOR ROAD
TRANSFER STATION IMPROVEMENTS

JOB NO: 227280
DATE: NOV. 2015
SCALE: 1"=600'

FIG. 2

RARE SPECIES LAYER REPRESENTS THE GEOGRAPHIC EXTENT OF HABITAT OF STATE-LISTED RARE SPECIES IN MASSACHUSETTS BASED ON OBSERVATIONS DOCUMENTED WITHIN THE LAST 25 YEARS IN DATABASE OF THE NATURAL HERITAGE & ENDANGERED SPECIES PROGRAM (NHESP)

RARE WILDLIFE LAYER IS BASED ON OCCURANCES OF RARE WETLAND WILDLIFE OBSERVED WITHIN THE LAST 25 YEARS AND DOCUMENTED IN THE NHESP DATABASE

BOTH DATALAYERS AND AERIAL IMAGE PROVIDED BY <http: //www.mass.gov/mgis/laylist.htm>

1000' 0 1000' 2000'

BAR SCALE
1" = 1000'
CHECK GRAPHIC SCALE BEFORE USING

WOODARD &CURRAN
980 Washington Street, Suite 325
Dedham, Massachusetts 02026
800.446.5518 | www.woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

RARE SPECIES (NHESP)

DESIGNED BY: N/A	CHECKED BY: MCM
DRAWN BY: BCM	USGS LOCATION MAP.dwg

TOWN OF DEDHAM
DEPARTMENT OF PUBLIC WORKS
55 RIVER ST.

INCINERATOR ROAD
TRANSFER STATION IMPROVEMENTS

JOB NO: 227280
DATE: NOV. 2015
SCALE: 1"=1000'

FIG. 3

APPENDIX A

MASSACHUSETTS HISTORICAL COMMISSION
220 MORRISSEY BOULEVARD
BOSTON, MASS. 02125
617-727-8470, FAX: 617-727-5128

RC. 19443

RECEIVED

NOV 16 2015

MASS. HIST. COMM

PROJECT NOTIFICATION FORM

Project Name: Dedham Transfer Station Upgrade

Location / Address: 5 Incinerator Road

City / Town: Dedham, MA

Project Proponent

Name: Town of Dedham Department of Public Works, c/o Joseph Flanagan

Address: 55 River Street

City/Town/Zip/Telephone: Dedham, MA 02026

After review of MHC files and the materials you submitted, it has been determined that this project is unlikely to affect significant historic or archaeological resources.

RC. 19443

12/2/15

Jonathan K. Patton Date
Archaeologist / Preservation Planner
Massachusetts Historical Commission

Agency license or funding for the project (list all licenses, permits, approvals, grants or other entitlements being sought from state and federal agencies).

Agency Name	Type of License or funding (specify)
Massachusetts Environmental Policy Act Office	Environmental Notification Form
Town of Dedham Board of Health	Site Assignment - Minor Modification
Town of Dedham Conservation Commission	MassDEP Bureau of Resource Protection - Wetland - Notice of Intent
Town of Dedham Planning Board	Site Plan Approval
Massachusetts Department of Environmental Protection	Authorization to Construct & Authorization to Operate

Project Description (narrative):

The proposed project will consist of upgrading the current operations at the Town of Dedham's Transfer Station from an annual average of 250 tons per day to an annual average of 500 tons per day of Municipal Solid Waste and Construction & Demolition. This is includes demolition of existing site features (building, retaining walls, etc.) and the construction of a new transfer building.

Does the project include demolition? If so, specify nature of demolition and describe the building(s) which are proposed for demolition.

The proposed project will include demolition of an existing 4,350 square foot brick building, shown in the attached photographs

Does the project include rehabilitation of any existing buildings? If so, specify nature of rehabilitation and describe the building(s) which are proposed for rehabilitation.

No buildings are proposed to be rehabilitated as part of this project.

Does the project include new construction? If so, describe (attach plans and elevations if necessary).

A 10,000 SF building and several retaining walls are proposed to be constructed as part of this project, as shown on the attached conceptual plan.

APPENDIX D: EXISTING CONDITIONS PLAN

LEGEND

	EXISTING
PROPERTY LINE SITE ASSIGNED LIMIT	
CONTOUR	
CHAIN LINK FENCE	
CURB	
RETAINING WALL	
GUARDRAIL	
DRAINAGE PIPE	
EDGE OF BROOK	
TREE LINE	
TOP OF BANK	TBF#2
100' INNER RIPARIAN ZONE/ 100' BUFFER TOP OF BANK	
200' OUTER RIPARIAN ZONE	
100 YR. FLOODPLAIN / BLSF	
100' BUFFER BLSF	
MDC FLOOD CONTROL EASEMENT	
BITUMINOUS PAVEMENT	CONCRETE
GRAVEL	GRAVEL
DRAINAGE MANHOLE	
CATCH BASIN	
STORMCEPTOR RELOCATED	
BUILDING	
EXTERIOR SCALE	SCALE

PLAN REFERENCES:

1. TOPOGRAPHIC SURVEY DATA TAKEN FROM PLAN ENTITLED "EXISTING CONDITIONS PLAN LOCATED IN DEDHAM, MASSACHUSETTS" PREPARED BY GEOD CONSULTING BRIGHTON, MA, DATED 5/14/2014.
2. HORIZONTAL DATUM: MASSACHUSETTS STATE PLAN COORDINATE SYSTEM
   VERTICAL DATUM: NAVD88
   UNITS: FEET
3. ORTHOGRAPHIC PHOTO PROVIDED BY USGS NATIONAL MAP VIEW, USGS STATE ORTHOIMAGERY, APRIL 2013 0.3M BOSTON, MA GEOTIFF.

30' 0 30' 60'
BAR SCALE
1" = 30'
CHECK GRAPHIC SCALE BEFORE USING

NOT FOR CONSTRUCTION

\\wc\shared\Projects\227280 Dedham MA - Incinerator Road Transfer Station\wip\Drawings\Design Drawings\227280.03 C10X rev.dwg, Jan 11, 2017 - 7:52am

WOODARD & CURRAN
980 Washington Street, Suite 325
Dedham, Massachusetts 02026
800.446.5518 | www.woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

COMMONWEALTH OF MASSACHUSETTS — ALAN A. BENEVIDES — CIVIL — No. 37893 — REGISTERED PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE

DESIGNED BY: MDLM — CHECKED BY: MDLM/AAB
DRAWN BY: BCM — 227280.03 C10X REV.DWG

EXISTING CONDITIONS

TOWN OF DEDHAM, MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS
55 RIVER STREET
DEDHAM, MA 02026

INCINERATOR ROAD TRANSFER STATION & RECYCLING CENTER IMPROVEMENTS

JOB NO.: 227280
DATE: JANUARY 2017
SCALE: 1"=30'
SHEET: 1 OF 2

FIG. 1

APPENDIX E: CONCEPTUAL SITE PLAN

LEGEND

	EXISTING	PROPOSED
PROPERTY LINE SITE ASSIGNED LIMIT		
CONTOUR	92	92
CHAIN LINK FENCE		
CURB		
RETAINING WALL		
GUARDRAIL		
DRAINAGE PIPE		
EDGE OF BROOK		
TREE LINE		
TOP OF BANK	TBF#2	
100' INNER RIPARIAN ZONE/ 100' BUFFER TOP OF BANK		
200' OUTER RIPARIAN ZONE		
100 YR. FLOODPLAIN / BLSF		
100' BUFFER BLSF		
BITUMINOUS PAVEMENT	CONCRETE	
GRAVEL	GRAVEL	
DRAINAGE MANHOLE		
CATCH BASIN		
STORMCEPTOR RELOCATED		
BUILDING		
EXTERIOR SCALE	SCALE	
ROLL-UP CONTAINER		
EMPTY STORAGE CONTAINER		

PLAN REFERENCES:

1. TOPOGRAPHIC SURVEY DATA TAKEN FROM PLAN ENTITLED "EXISTING CONDITIONS PLAN LOCATED IN DEDHAM, MASSACHUSETTS" PREPARED BY GEOD CONSULTING BRIGHTON, MA, DATED 5/14/2014.
2. HORIZONTAL DATUM: MASSACHUSETTS STATE PLAN COORDINATE SYSTEM
   VERTICAL DATUM: NAVD88
   UNITS: FEET
3. ORTHOGRAPHIC PHOTO PROVIDED BY USGS NATIONAL MAP VIEW, USGS STATE ORTHOIMAGERY, APRIL 2013 0.3M BOSTON, MA GEOTIFF.

NOT FOR CONSTRUCTION

BAR SCALE 1" = 30'
CHECK GRAPHIC SCALE BEFORE USING

WOODARD & CURRAN
980 Washington Street, Suite 325
Dedham, Massachusetts 02026
800.446.5518 | www.woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

COMMONWEALTH OF MASSACHUSETTS — ALAN A. BENEVIDES — CIVIL — REGISTERED PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE

DESIGNED BY: MDLM — CHECKED BY: MDLM/AAB
DRAWN BY: BCM — 227280.03 C10X REV.DWG

CONCEPTUAL SITE LAYOUT PLAN

TOWN OF DEDHAM, MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS
55 RIVER STREET
DEDHAM, MA 02026

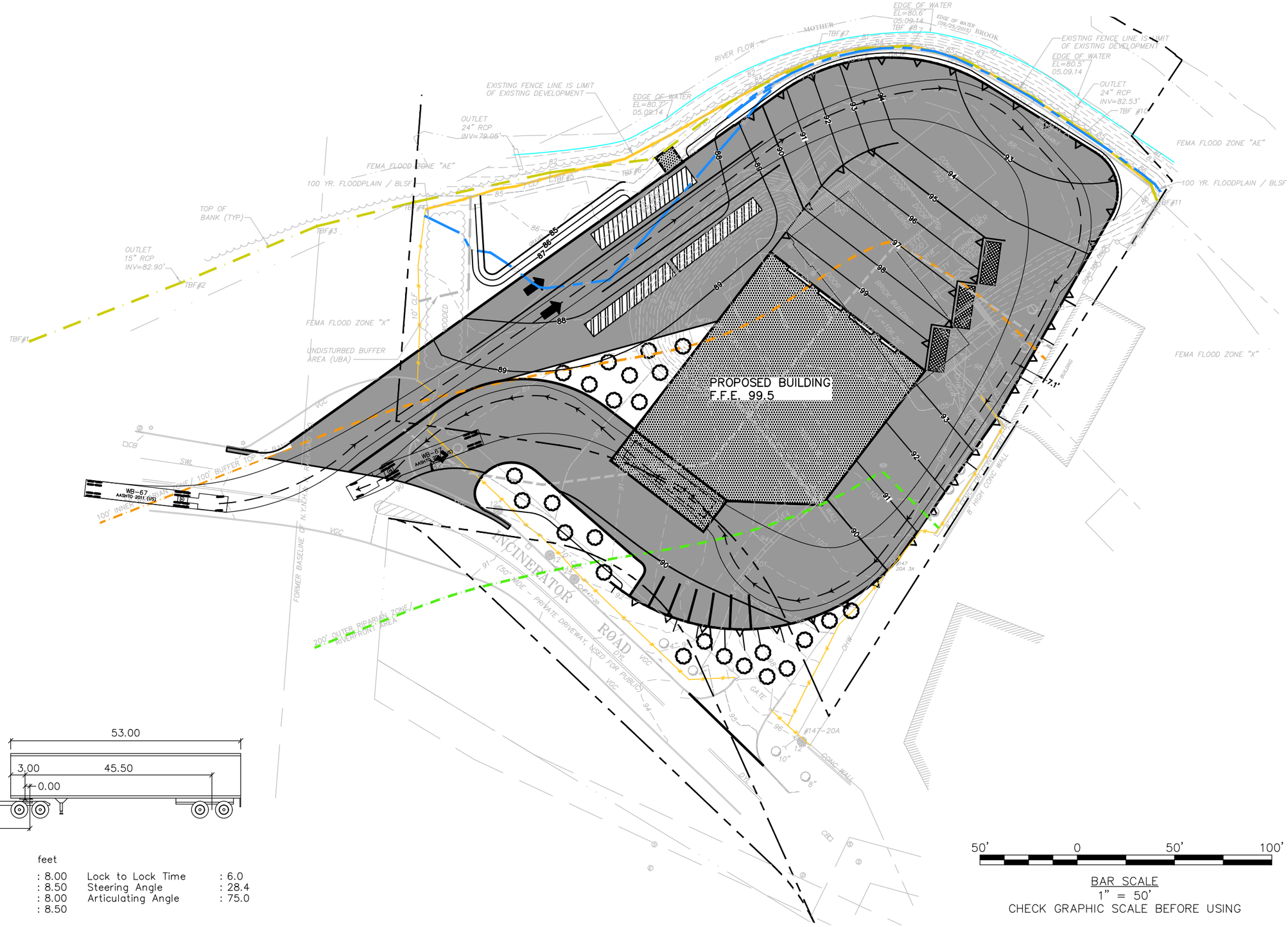
INCINERATOR ROAD TRANSFER STATION & RECYCLING CENTER IMPROVEMENTS

JOB NO.: 227280
DATE: JANUARY 2017
SCALE: 1"=30'
SHEET: 2 OF 3

PLAN 2

\\wc\shared\Projects\227280 Dedham MA - Incinerator Road Transfer Station\wip\Drawings\Design Drawings\227280.03 C10X rev.dwg, Jan 11, 2017 - 7:56am

APPENDIX F: TRUCK TRAFFIC FIGURES



980 Washington Street, Suite 325
Dedham, Massachusetts 02026
800.446.5518 | www.woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

VEHICLE TURNING – 1

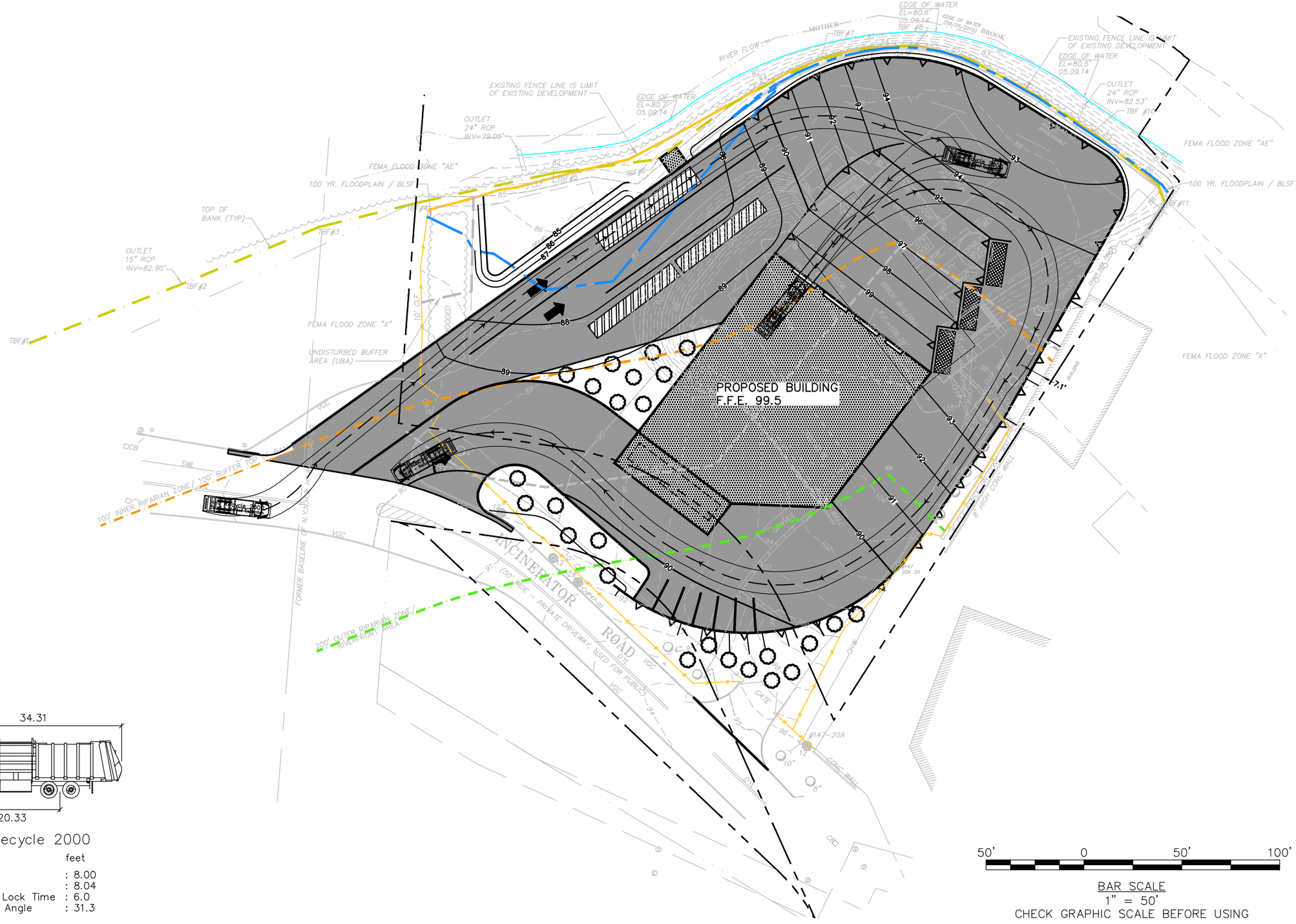
DESIGNED BY: MDLM
DRAWN BY: BCM
CHECKED BY: MDLM/AAB
227280.03 C10X REV.dwg

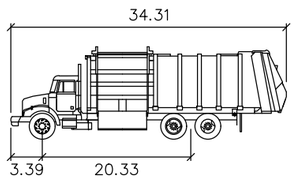
TOWN OF DEDHAM, MA
DEPARTMENT OF PUBLIC WORKS

INCINERATOR ROAD TRANSFER STATION & RECYCLING CENTER IMPROVEMENTS

JOB NO: 227280
DATE: JAN. 2017
SCALE: 1"=50'

FIG. 1





Heil Recycle 2000

	feet
Width	: 8.00
Track	: 8.04
Lock to Lock Time	: 6.0
Steering Angle	: 31.3

50' 0 50' 100'

BAR SCALE
1" = 50'
CHECK GRAPHIC SCALE BEFORE USING

980 Washington Street, Suite 325
Dedham, Massachusetts 02026
800.446.5518 | www.woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

VEHICLE TURNING - 2

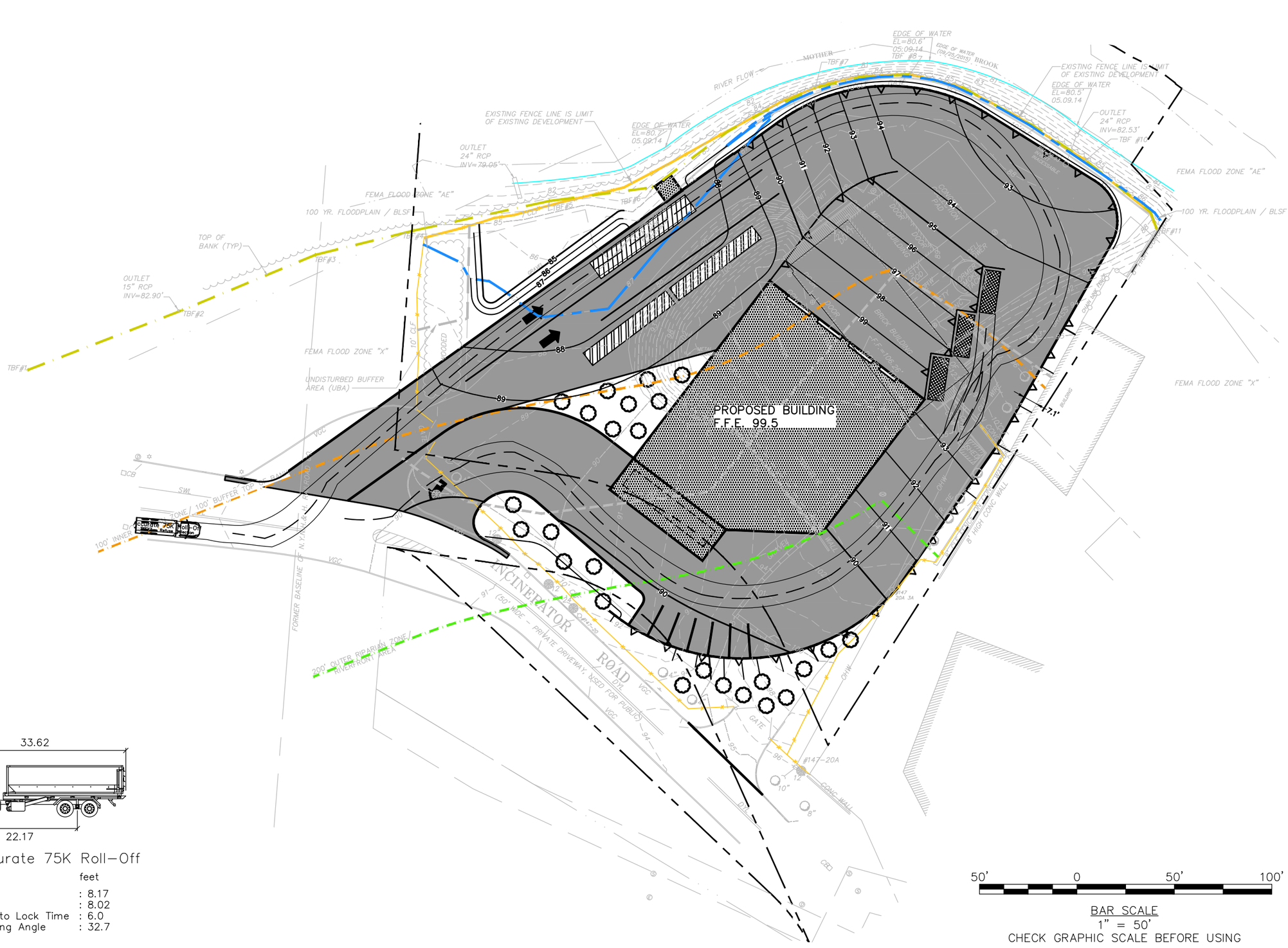
DESIGNED BY: MDLM
DRAWN BY: BCM
CHECKED BY: MDLM/AAB
227280.03 C10X REV.dwg

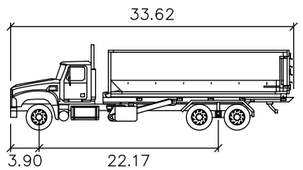
TOWN OF DEDHAM, MA
DEPARTMENT OF PUBLIC WORKS

INCINERATOR ROAD TRANSFER STATION
& RECYCLING CENTER IMPROVEMENTS

JOB NO: 227280
DATE: JAN. 2017
SCALE: 1"=50'

FIG. 2





Accurate 75K Roll–Off

	feet
Width	: 8.17
Track	: 8.02
Lock to Lock Time	: 6.0
Steering Angle	: 32.7

50' 0 50' 100'

BAR SCALE
1" = 50'
CHECK GRAPHIC SCALE BEFORE USING

980 Washington Street, Suite 325
Dedham, Massachusetts 02026
800.446.5518 | www.woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

VEHICLE TURNING – 3

DESIGNED BY: MDLM
DRAWN BY: BCM
CHECKED BY: MDLM/AAB
227280.03 C10X REV.dwg

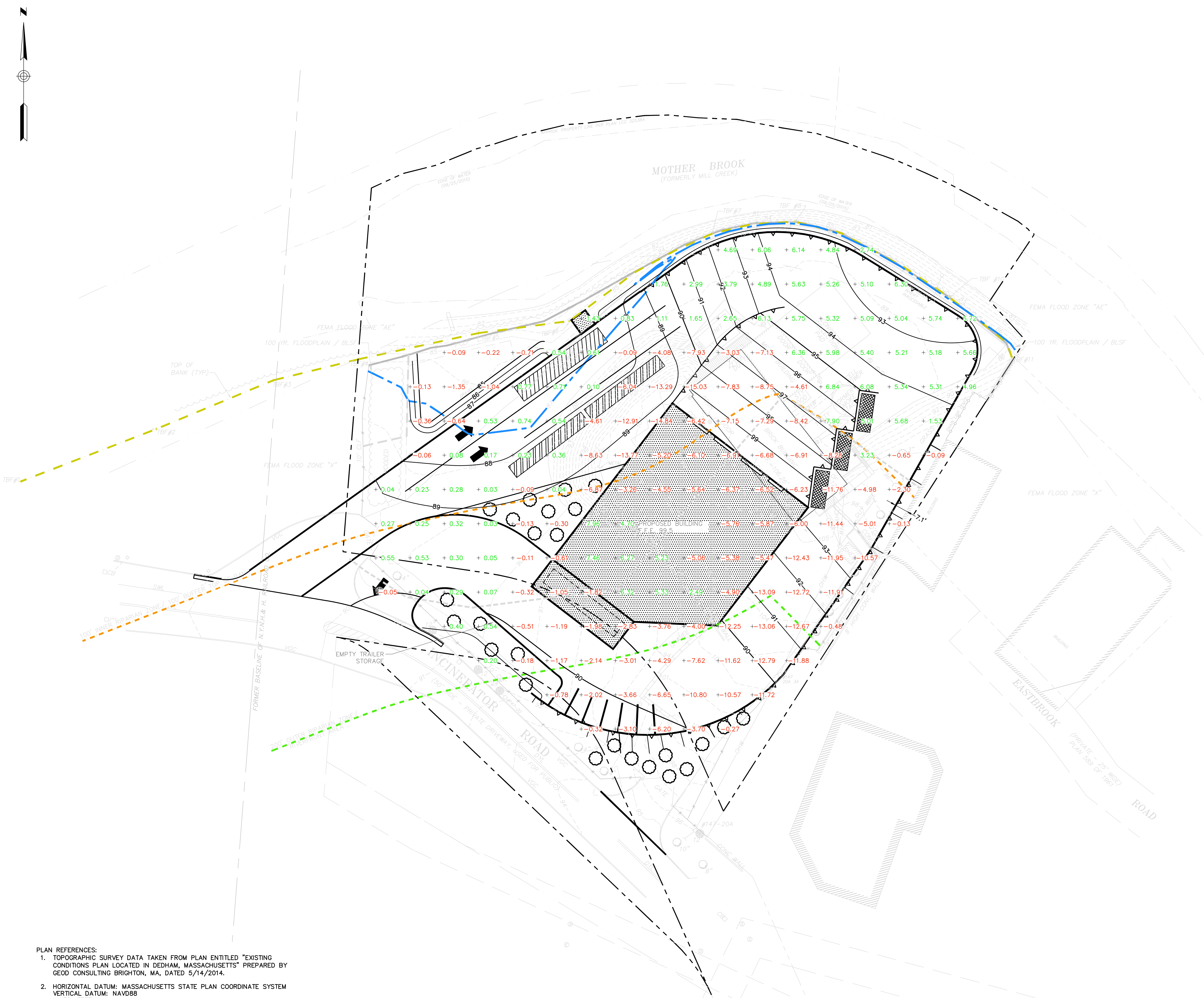
TOWN OF DEDHAM, MA
DEPARTMENT OF PUBLIC WORKS

INCINERATOR ROAD TRANSFER STATION
& RECYCLING CENTER IMPROVEMENTS

JOB NO: 227280
DATE: JAN. 2017
SCALE: 1"=50'

FIG. 3

APPENDIX G: CUT AND FILL PLAN



PLAN REFERENCES:

1. TOPOGRAPHIC SURVEY DATA TAKEN FROM PLAN ENTITLED "EXISTING CONDITIONS PLAN LOCATED IN DEDHAM, MASSACHUSETTS" PREPARED BY GEOD CONSULTING BRIGHTON, MA, DATED 5/14/2014.
2. HORIZONTAL DATUM: MASSACHUSETTS STATE PLAN COORDINATE SYSTEM
   VERTICAL DATUM: NAVD88
   UNITS: FEET
3. ORTHOGRAPHIC PHOTO PROVIDED BY USGS NATIONAL MAP VIEW, USGS STATE ORTHOIMAGERY, APRIL 2013 0.3M BOSTON, MA GEOTIFF.

KEY

+X.XX FILL

+-X.XX CUT

30' 0 30' 60'

BAR SCALE
1" = 30'
CHECK GRAPHIC SCALE BEFORE USING

NOT FOR CONSTRUCTION

WOODARD & CURRAN

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Dedham, Massachusetts 02026
800.446.5518 | www.woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS

REV	DESCRIPTION	DATE

DESIGNED BY: MDLM
DRAWN BY: BCM
CHECKED BY: MDLM/AAB
227280.03 C10X REV.DWG

CUT/ FILL FIGURE

TOWN OF DEDHAM, MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS
55 RIVER STREET
DEDHAM, MA 02026

INCINERATOR ROAD TRANSFER STATION & RECYCLING CENTER IMPROVEMENTS

JOB NO.: 227280
DATE: JANUARY 2017
SCALE: 1"=30'
SHEET: 1 OF 1

VOL

APPENDIX H: NOISE STUDY SCOPE OF WORK

TECH environmental
FOCUSED KNOWLEDGE. REAL SOLUTIONS.

January 11, 2016

Ms. Denise Cameron
Woodard & Curran, Inc.
980 Washington Street, Suite 325
Dedham, MA 02026

Ref. 3990

Re: Sound Study for Site Assignment– MSW Transfer Station, Dedham, MA

Dear Denise:

Tech Environmental, Inc. (Tech) is pleased to provide Woodard & Curran (W&C) with this proposal for a sound study to support a proposed upgrade to the municipal solid waste (MSW) transfer station at 5 Incinerator Road, Dedham, Massachusetts. The sound study will be used to support the Massachusetts Department of Environmental Protection (MassDEP) Site Assignment determination. We understand the new facility will increase the waste handling operations to an annual average of 500 tons per day, with a peak capacity of 750 ton per day operation. The new facility will likely operate five days per week (Monday-Friday, 7:30 a.m. – 4:00 p.m.) and Saturdays from 7:30 a.m. – 12:00 p.m. MSW will be delivered to the site by trucks and dumped inside the enclosed transfer station. The waste will be sorted and processed to be trucked offsite.

Per our telephone conversation on Friday, January 8th, the following work items were identified and have been included in the Scope of Work below: 1) Baseline sound monitoring to establish existing ambient sound conditions, and 2) Acoustic modeling will cover all activity areas outdoors in addition to the transfer station mechanical equipment, truck movements entering and existing the site, truck idling and backup beepers. The existing site is surrounded by commercial development on all sides and the closest residential properties are on Lower E Street to the east of the site.

Tech will compare the results of the sound study with the Massachusetts Department of Environmental Protection (MassDEP) Noise Policy. The MassDEP Noise Policy limits the increase in the broadband sound level to 10 A-weighted decibels (dBA) above the existing background (L_{90}) sound level during the proposed transfer station hours of operation. The Town of Dedham Zoning and General Bylaws do not have quantitative noise regulations.

MassDEP does not regulate sound from motor vehicles accessing the site or the equipment backup notification alarms as required by the Occupational Safety and Health Administration (OSHA). Therefore, the provisions described above only apply to a portion of the sources that may generate sound during the operation of the proposed facility. Federal law pre-empts state and local governments from regulating the sound of trucks making deliveries to a commercial site under the federal Noise Control Act of 1972 and the Surface Transportation Assistance Act of 1982.

Separately, the transportation sound from trucks movements on and off site will be quantified and compared to the FHWA Noise Abatement Criteria (NAC) for commercial and residential areas. In addition, the results of acoustic modeling of truck backup beepers on the site will be compared to existing sound levels.

Tech will use a sophisticated 3-D acoustic model (CadnaA) to assess onsite sound source impacts. CadnaA implements International Standard ISO-9613.2 for sound propagation and the model will simulate the effects of hemispherical wave spreading, atmospheric absorption, ground effects, and shielding/reflections by structures and terrain. The FWHA Traffic Noise Model (TNM), Version 2.5 will be used to model vehicle traffic entering and existing the site.

Required Information

Tech will need the following information to perform the Scope of Work presented below:

1. Verify operating hours for the new transfer station operations.
2. Identify activity areas on the site, and for each describe the activity, equipment that is used, and its operating hours.
3. A scaled site plan for the building orientation with property bounds showing the transfer building, rollup door locations and truck circulation path. Building height inside and exterior.
4. How many doors will remain open during the day and for how long? Or will doors open and close for each truck delivery of material?
5. Dimensions of the rollup door openings.
6. List of diesel equipment operating indoors and the operating hours per day for each.
7. List of diesel equipment operating outdoors; specify their location and the operating hours per day for each.
8. What is the design flow rate for the building ventilation system (cfm)? Any specifications on the number and size of the fans? Their location? Location of rooftop exhausts? Any sound power data for the fans?
9. Maximum hourly truck trips to and from the site,

Scope of Work

Task 1 - Baseline Sound Level Monitoring

Baseline sound level monitoring will be done at multiple locations on the site property lines and at the nearest commercial and residential areas to establish the lowest existing background sound levels (L_{90}), during the work day. Tech will setup one long-term sound analyzer at a location representative of the site property and the commercial development on Incinerator Road to collect existing (broadband and whole octave bands) sound levels over a one-week period. Tech will use Larson Davis (LD) 831 and Bruel & Kjaer (B&K) 2250 real-time analyzers to collect baseline sound level measurements. A Tech acoustic engineer will also perform short-term baseline sound level measurements at up to three (3) additional locations along the Lower E Street neighborhood during the weekday between the proposed weekday operating hours of (7:30 a.m. to 4:00 p.m.). These sound analyzers are Type 1 (ANSI) high precision instruments and will be calibrated on-site prior to each measurement. Tech will summarize the resulting baseline sound levels and examine them for any existing pure tones.

Task 2 - Acoustic Modeling of Sound Level Impacts

Acoustic modeling will be performed for all mechanical equipment inside the transfer station, including any rooftop fans identified by W&C. The Project operational sound will be predicted using the CadnaA acoustic modeling software. Predicted future sound levels from the transfer station will be compared to the MassDEP Noise Policy limits and pure tone criteria at the site property lines and nearest commercial and residential areas. Results will be presented in both tabular form and color mapping.

If compliance is not obtained after the first set of model runs, we will discuss mitigation measures in certain locations to provide the necessary shielding, and then rerun the acoustic model to achieve compliance. Sound mitigation modeling will include up to three additional model runs. Mitigation measures that will be considered include, but not limited to the following:

- Acoustic treated roll-up doors,
- Quieter mufflers on waste handling equipment, such as front-end loaders,
- Sound walls to reduce onsite sound source levels, and
- Quieter roof top ventilation equipment.

Acoustic modeling of truck backup beepers on the site will be done using CadnaA and the results will be compared to existing residential sound levels. These sounds are exempt from State and local regulation by federal law (OSHA).

Acoustic modeling for truck movements and idling on the site and on the approach routes will be done using the CadnaA or TNM models and the results will be compared to existing levels and FHWA guidelines at residential locations. These sounds are exempt from State and local regulation by federal law.

Task 3 – Technical Report

Tech will summarize the data, results and conclusions of the sound study in a written report that includes all model output and measurements, including color sound contour maps. The conclusions will be highlighted in an Executive Summary written for the layman. A draft of the report will be emailed to you for internal review and comment and after comments are received the final version will again be emailed to W&C.

Cost and Terms

This Scope of Work will be performed on a time and materials basis. The total cost will not exceed **$XXXXX**. Invoices will be sent to W&C monthly and will be due and payable within 10 days of when W&C receives payment from its client for our services.

Additional Work

We will perform any additional work you request on a Time & Materials basis, the cost for which is not included in the above budget. Examples of Additional Work include: revisions to the report to incorporate changes to the Project design after the analysis has been performed, writing responses to

public or MassDEP/Town comments on the reports, or writing additional reports for other government approval processes.

We are ready to start work upon receipt of a signed copy of this agreement or a purchase order referencing this proposal. We look forward to working with you on this assignment.

Sincerely yours,

TECH ENVIRONMENTAL, INC.

Marc C. Wallace, QEP
Principal
3990/ Proposal 01/11/16

Accepted by

WOODARD & CURRAN, INC.

_____
Name

_____
Title

_____
Date

APPENDIX I: TRAFFIC STUDY

Town of Dedham, Massachusetts

Traffic Impact Assessment – Expansion of Transfer Facility

November 25, 2015

TRAFFIC REPORT

BETA
315 Norwood Park South
2nd Floor
Norwood, Massachusetts 02062
781.255.1982
www.BETA-Inc.com

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1.0 INTRODUCTION

As requested, BETA Group, Inc. (BETA) has completed our Traffic Impact Assessment for the Expansion of the Transfer Facility in conjunction with Woodard and Curran for the Town of Dedham, Massachusetts.

The purpose of the assessment is to evaluate the expected impacts from the expansion of the existing transfer facility on the former incinerator site located off Incinerator Road between Washington Street and Providence Highway. The study area is comprised of a segment of Incinerator Road bounded by the intersections of Providence Highway to the west and Washington Street to the east. The proposed expansion consists of an increase in operations from 250 Tons to 500 Tons per average annual day, with a maximum peak of 750 tons per day. The proposed program also involves expanding the existing residential use of the site on Saturday morning which will include a recycling operation in the future. **Figure 1** shows the location of the study intersections.

2.0 EXISTING CONDITIONS

2.1 Study Area Intersections

The study area consists of three signalized intersections and two internal unsignalized intersections:

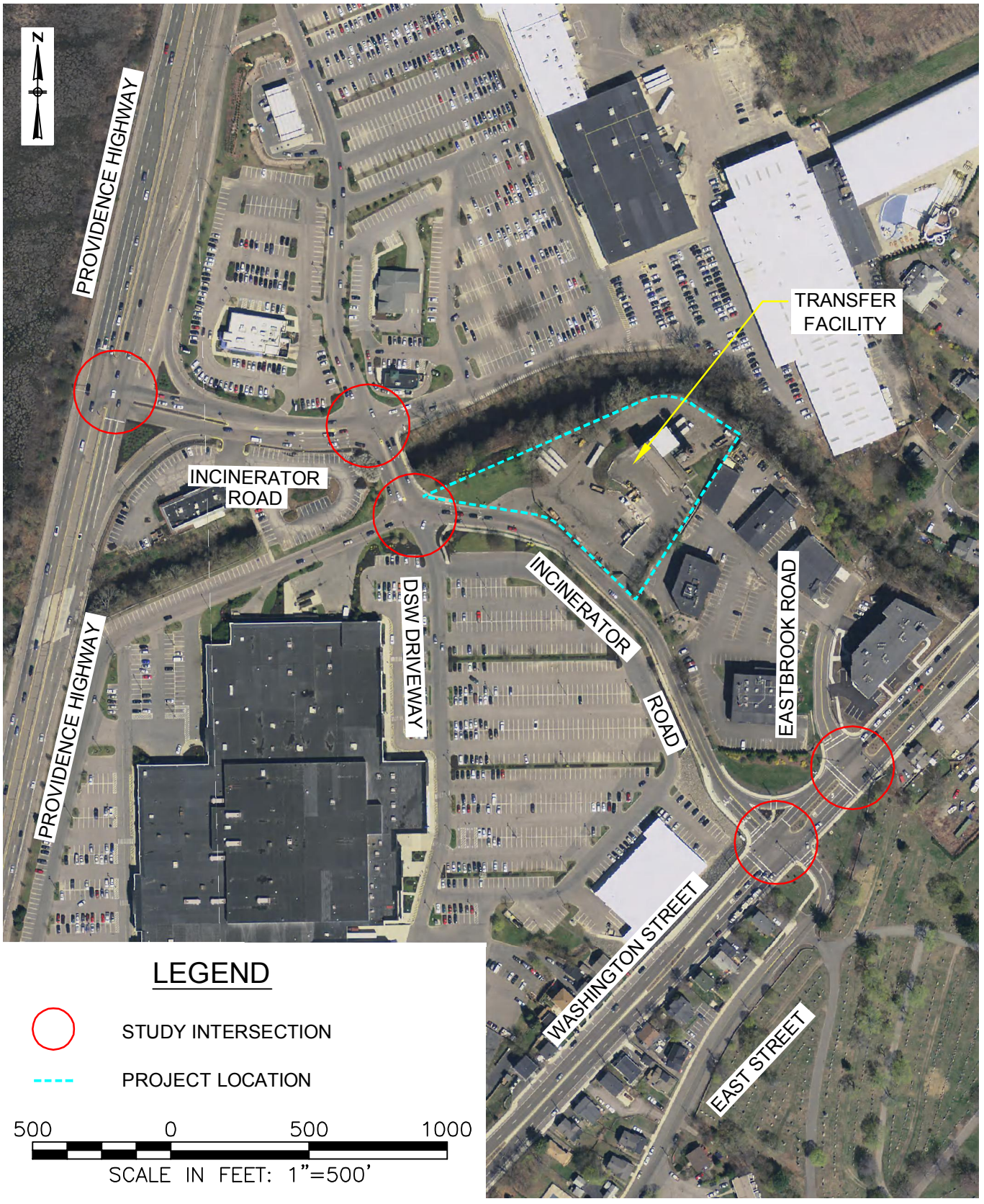
- Providence Highway and Incinerator Road (Signalized)
- Washington Street and Incinerator Road/East Street (Signalized)
- Washington Street and Eastbrook Road (Signalized)
- Incinerator Road and Internal Roadways (Unsignalized)
- Incinerator Road and DSW Driveway (Unsignalized)

2.2 Turning Movement Counts

Manual Turning Movement Count (TMC) data were collected on Tuesday, March 24, 2015 and on Saturday, March 28, 2015. All Study Area intersections were counted from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM on a weekday and from 11:00 AM to 2:00 PM. Passenger cars, heavy vehicles, pedestrians and bicycles were counted.

Based on the peak hours of the study locations, the overall peak hours for Incinerator Road were 8:00-9:00 AM and 5:00-6:00 PM on a weekday, and from 12:30 to 1:30 PM on Saturday. The peak hour turning movements are shown in **Figure 2.**

Automatic Traffic Recorder (ATR) Counts were collected for a 48-hour period from Tuesday, March 24 to Wednesday, March 25, 2015 at two locations within the study area. ATR data were collected on Providence Highway south of Incinerator Road and on Washington Street south of Incinerator Road. The data collected is presented in **Table 1**.



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Traffic Impact Assessment
Expansion of Transfer Facility

Dedham, MA

Figure 1

Location Map

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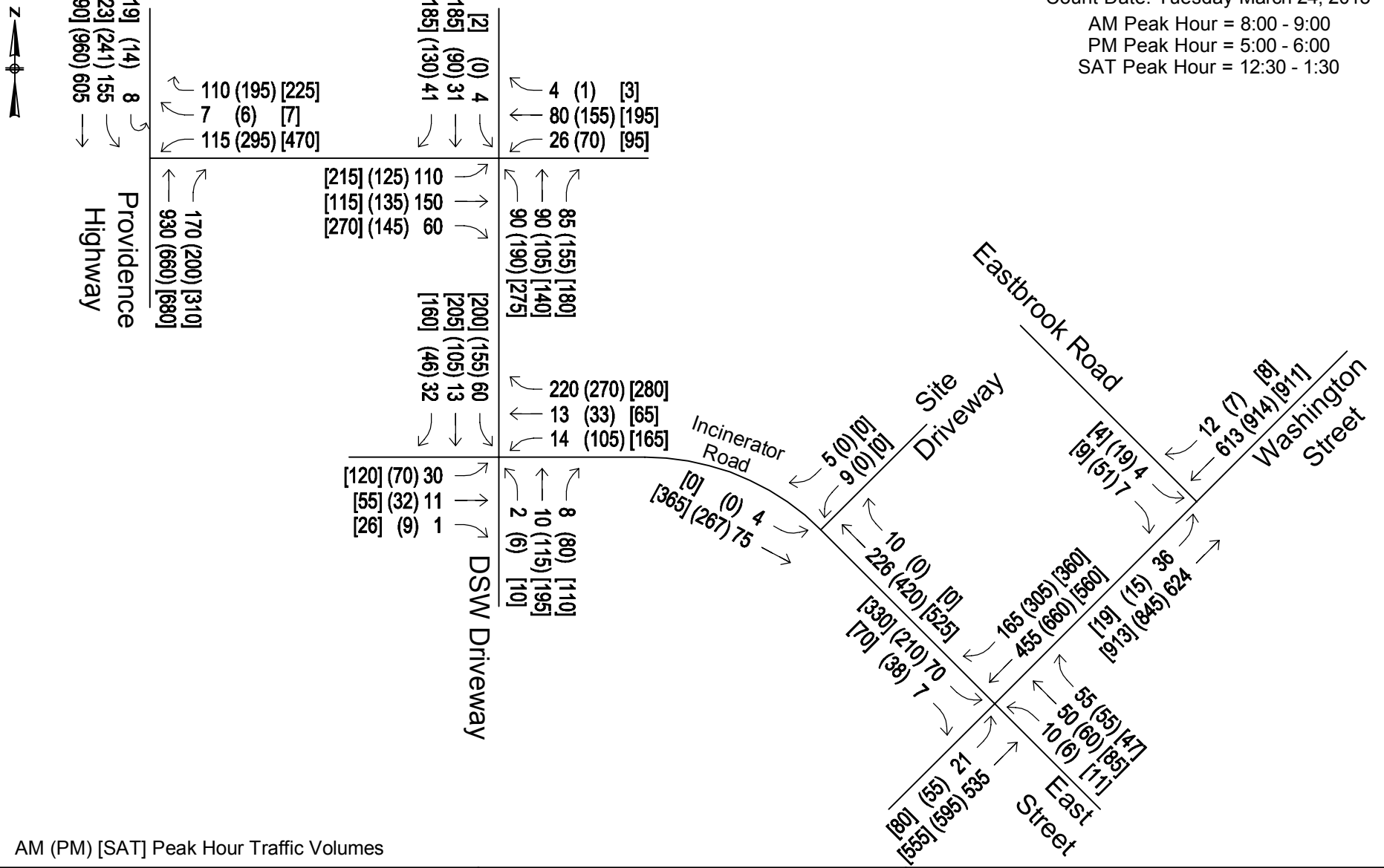

AM (PM) [SAT] Peak Hour Traffic Volumes

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Traffic Impact Assessment
Transfer Station Expansion

Dedham, MA

Figure 2

Existing (2015) Peak Hour
Turning Movement Volumes

Table 1 – 2015 Average Daily Traffic Volumes

Location	Direction	Volume
Providence Highway (south of Incinerator Road)	Northbound	16,040
	Southbound	14,940
	TOTAL	**30,980**
Washington Street (south of Incinerator Road)	Northbound	8,415
	Southbound	9,570
	TOTAL	**17,985**

3.0 OBSERVATIONS

BETA observed the study intersections for queues, delays, truck traffic and driver behavior during the AM and PM peak periods on November 12, 2015 and again for the Saturday peak period on November 14, 2015. Observations revealed the following:

AM Peak Hour:

- Vehicles tend to roll through stop signs.
- There was a heavy right turn for vehicles entering from Washington Street headed through Incinerator Road to exit on Providence Highway.
- The Starbucks coffee shop on the northeast corner on the intersection of Incinerator Road and the internal driveways generates a significant amount of traffic in the morning peak hour.
- Truck traffic is moderate, and does not impact operations at any of the intersections significantly.

PM Peak Hour:

- Heavy traffic results in several vehicles arriving at each the two unsignalized intersections in multiple lanes. This causes confusion to the vehicles over who has the right of way.
- The segment of Incinerator Road between the two unsignalized intersections is very dark and a pedestrian was almost struck by a vehicle in this section.
- The transfer station closes at 3:30pm and does not affect operations at any of the intersections during the commuter PM Peak Hour.

Saturday Peak Hour:

- Traffic was very heavy and significant queues were observed in several approaches.
- Two minor rear-end crashes were observed during the Saturday Peak Hour, both occurring while taking right turns:
    - One crash at the intersection of Incinerator Road and the DSW Driveway.
    - One crash at the intersection of Washington Street and Incinerator Road.

- Queues for the segment of Incinerator Road between the two unsignalized intersections exceeded their available storage and resulted in vehicles queuing through the intersections. This was especially seen at the intersection of Incinerator Road and the DSW Driveway where vehicles from the northbound, eastbound, and westbound approaches all queued waiting for available storage in the left turn lane headed northbound. Vehicles were also observed blocking the intersection in order to make it through, resulting in gridlock.
- Queues for the eastbound approach of Incinerator Road at Washington Street queued back to the intersection with the DSW Driveway.
- Queues for the westbound approach of Incinerator Road at the DSW driveway queued back to the intersection with Washington Street.
- Truck traffic is moderate, and does not impact operations at any of the intersections significantly.
- Heavy traffic results in several vehicles arriving at the intersection of Incinerator Road and the DSW Driveway in multiple lanes. This causes confusion to the vehicles over who has the right of way.

4.0 CAPACITY ANALYSIS

4.1 Existing Level of Service (LOS) Analysis Results

A level of service analysis was performed for the project's existing signalized and unsignalized intersections using Synchro 8 based on criteria defined as shown in **Table 2** and **Table 3**.

Table 2 – Level of Service Criteria (Signalized Intersections)

LOS	Control Delay (Sec/Veh)	General Description
A	≤ 10	Free flow
B	>10 and ≤ 20	Stable flow (slight delays)
C	>20 and ≤ 35	Stable flow (acceptable delays)
D	>35 and ≤ 55	Approaching unstable flow (tolerable delay)
E	>55 and ≤ 80	Unstable flow (intolerable delay)
F	>80	Forced flow (jammed)

Table 3 – Level of Service Criteria (Unsignalized Intersections)

LOS	Control Delay (Sec/Veh)	General Description
A	≤ 10	Free flow
B	>10 and ≤ 15	Stable flow (slight delays)
C	>15 and ≤ 25	Stable flow (acceptable delays)
D	>25 and ≤ 35	Approaching unstable flow (tolerable delay)
E	>35 and ≤ 50	Unstable flow (intolerable delay)
F	>50	Forced flow (jammed)

A summary of the results of the capacity analysis for the study intersections are shown in **Table 4** and **Table 5.**

Table 4 – Level of Service Results - Existing (2014) – AM, PM & SAT Peak Hour (Signalized)

INTERSECTION	AM Peak Hour					PM Peak Hour					Saturday Peak Hour				
	LOS	Delay*	v/c	50th % Queue	95th % Queue	LOS	Delay*	v/c	50th % Queue	95th % Queue	LOS	Delay*	v/c	50th % Queue	95th % Queue
Providence Highway at Incinerator Road															
Providence Highway NB T	B	17.0	0.66	159’	255’	B	16.9	0.48	107’	162’	C	20.7	0.59	134’	187’
Providence Highway NB R	B	11.4	0.12	0	35	B	13.9	0.13	0	37	B	16.8	0.20	0	49
Providence Highway SB L	C	25.2	0.51	59	109	C	30.5	0.69	93	#177	F	187.4	1.32	294	#439
Providence Highway SB T	A	4.0	0.26	38	63	A	5.7	0.39	76	125	A	6.8	0.40	90	115
Incinerator Road WB LR	C	25.2	0.29	24	46	C	25.5	0.46	54	87	C	29.4	0.72	108	157
Incinerator Road WB HR	C	24.2	0.08	0	38	C	23.4	0.11	0	47	C	22.8	0.15	0	53
Overall	**B**	**14.4**				**B**	**15.3**				**D**	**44.2**			
Washington Street at Incinerator Road/East Street															
Washington Street NB L	D	37.7	0.32	10’	40’	D	39.9	0.49	27’	80’	D	41.7	0.62	38’	#139’
Washington Street NB T	B	15.8	0.40	87	214	B	16.7	0.38	95	215	B	17.3	0.41	90	214
Washington Street SB TR	A	9.3	0.51	0	100	B	12.7	0.70	0	136	C	21.4	0.83	15	122
Incinerator Road EB L	D	36.3	0.47	25	61	D	40.3	0.64	67	#184	F	221.9	1.34	137	#378
Incinerator Road EB R	C	34.2	0.03	0	0	C	33.2	0.08	0	0	C	33.1	0.13	0	49
East Street WB LT	D	38.5	0.58	40	#107	E	59.0	0.72	37	#132	E	73.1	0.86	60	#185
East Street WB R	D	36.8	0.53	29	#87	D	44.4	0.56	25	#89	D	36.0	0.42	24	#68
Overall	**B**	**16.8**				**C**	**20.5**				**D**	**45.4**			
Washington Street at Eastbrook Road															
Washington Street NB L	C	22.7	0.09	14’	48’	C	23.9	0.03	6’	23	C	25.0	0.04	8’	21’
Washington Street NB T	A	2.3	0.32	13	20	A	2.6	0.37	16	43	A	7.4	0.45	56	92
Washington Street SB TR	C	25.4	0.68	151	#358	D	36.3	0.87	227	#536	F	100.1	1.12	260	#586
Eastbrook Road EB L	C	34.2	0.05	3	18	D	38.4	0.28	13	45	D	35.1	0.04	2	23
Overall	**B**	**14.5**				**C**	**21.0**				**D**	**53.5**			

* Delay is expressed in seconds per vehicle

- 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after 2 cycles.

Table 5 – Level of Service Results - Existing (2014) – AM, PM & SAT Peak Hour (Unsignalized)

INTERSECTION	AM Peak Hour				PM Peak Hour				Saturday Peak Hour			
	LOS	Delay*	v/c	95th % Queue	LOS	Delay*	v/c	95th % Queue	LOS	Delay*	v/c	95th % Queue
Incinerator Road at Internal Roadways												
Incinerator Road NB LT	B	14.5	0.42	50’	C	23.7	0.64	110’	F	82.8	1.33	280’
Incinerator Road NB R	A	9.7	0.17	15	B	12.5	0.30	30	C	22.7	0.53	75
Internal Road SB LTR	B	11.1	0.20	18	C	17.7	0.48	65	F	81.9	1.25	283
Incinerator Road EB L	B	12.1	0.26	25	B	14.3	0.28	28	D	33.9	0.68	120
Incinerator Road EB T	B	12.2	0.33	35	B	13.7	0.28	30	C	18.4	0.35	38
Incinerator Road EB R	A	9.3	0.12	10	B	12.5	0.27	28	E	37.3	0.76	155
Internal Road WB L	B	10.8	0.07	5	B	13.2	0.16	13	C	19.9	0.33	35
Internal Road WB TR	B	11.4	0.20	18	C	15.3	0.34	38	D	32.9	0.66	110
Incinerator Road at DSW Driveway												
DSW Driveway NB LTR	A	8.7	0.05	3’	B	13.0	0.36	40’	E	39.0	0.79	183’
Incinerator Road SB LT	A	9.8	0.17	15	C	15.8	0.49	65	F	73.9	1.02	313
Incinerator Road SB R	A	8.2	0.07	5	A	9.0	0.08	5	B	14.7	0.36	40
Internal Road EB LTR	A	9.0	0.07	5	B	12.1	0.24	23	C	23.6	0.55	80
Incinerator Road WB LT	A	8.4	0.06	5	B	11.9	0.26	25	D	25.4	0.62	105
Incinerator Road WB R	A	9.6	0.36	43	B	12.5	0.42	53	C	24.9	0.66	120
Incinerator Road at Site Driveway (North)												
Incinerator SB L	A	0.0	0.00	0’	A	0.0	0.00	0’	A	0.0	0.00	0’
Site Driveway WB LR	B	11.6	0.01	0	B	14.5	0.01	0	C	19.3	0.01	0
Incinerator Road at Site Driveway (South)												
Incinerator SB L	A	9.0	0.01	0’	A	9.7	0.01	0’	A	8.6	0.01	0’
Site Driveway WB LR	B	12.1	0.02	3	C	15.8	0.03	3	C	16.1	0.04	3
* Delay is expressed in seconds per vehicle												

The LOS results reveal that existing operational deficiencies are present at each intersection, with most occurring in the Saturday peak hour. Results are discussed in further detail below:

Providence Highway at Incinerator Road

The signalized intersection of Providence Highway and Incinerator Road operates at an overall level of service (LOS) B in both the Existing morning and afternoon peak hours, with average delays of 14.4 seconds and 15.3 seconds, respectively. All individual moves operate at LOS C or better. Queues remain adequately served by available storage with the exception of the southbound left turn lane during the PM peak hour.

During the Saturday midday peak hour the intersection operates at an overall LOS D with an average delay of 44.2 seconds. Significant delays occur at the left turn movement southbound (LOS F, 187.4 seconds), with queues exceeding the available storage length. All remaining individual movements operate at LOS C or better and provide adequate storage for queues.

Washington Street at Incinerator Road/East Street

The signalized intersection of Washington Street at Incinerator Road and East Street operates at an overall LOS B in the AM peak hour and LOS C in the PM peak hour, with average delays of 16.8 seconds and 20.5 seconds, respectively. All individual moves operate at LOS D or better with the exception of the westbound shared left/through lane (LOS E, 59.0 seconds) in the PM peak hour. Queues remain adequately served by available storage in both weekday peak hours, with the exception of the westbound shared left/through lane and the westbound right turn lane. The eastbound left turn lane exceeds storage during the PM peak hour only.

During the Saturday midday peak hour the intersection operates at an overall LOS D with an average delay of 45.4 seconds. Delays are seen for the left turn eastbound (LOS F, 221.9 seconds) and the shared left/through movement westbound (LOS E, 73.1 seconds). Queues for the northbound and eastbound left turns and both the westbound approaches also exceed their capacities. All remaining individual movements operate at LOS D or better and provide adequate storage for queues.

Washington Street at Eastbrook Road

The signalized intersection of Washington Street and Eastbrook Road operates at an overall LOS B in the AM peak hour and LOS C in the PM peak hour, with average delays of 14.5 seconds and 21.0 seconds, respectively. All individual moves operate at LOS D or better. Queues remain adequately served by available storage in both weekday peak hours with the exception of the southbound shared through/right turn lane.

During the Saturday midday peak hour the intersection operates at an overall LOS D with an average delay of 53.5 seconds. Significant delay exists on the southbound through/right turn lane (LOS F, 100.1 seconds). All remaining individual movements operate at LOS D or better. Queues for the southbound shared through/right turn lane exceed available storage. All remaining individual movements operate at LOS D or better and provide adequate storage for

queues.

Incinerator Road at Internal Roadways

All individual movements of the unsignalized intersection of Incinerator Road and the internal roadways connecting to various parking lots operate at LOS C or better in both the AM and PM peak hours. Geometry at the intersection results in queues stacking in the approaches with the exception of the northbound approach which is governed by the intersection of Incinerator Road and the DSW driveway. On this approach, the queues will extend back to the intersection with the DSW driveway for the shared left/through lane northbound for the PM and Saturday peak hours.

During the Saturday midday peak hour, significant delays exist for the northbound shared left/through lane (LOS F, 82.8 seconds), southbound shared left/through/right lane (LOS F, 81.9 seconds) and the eastbound right turn lane (LOS E, 37.3 seconds). All remaining individual movements operate at LOS D or better.

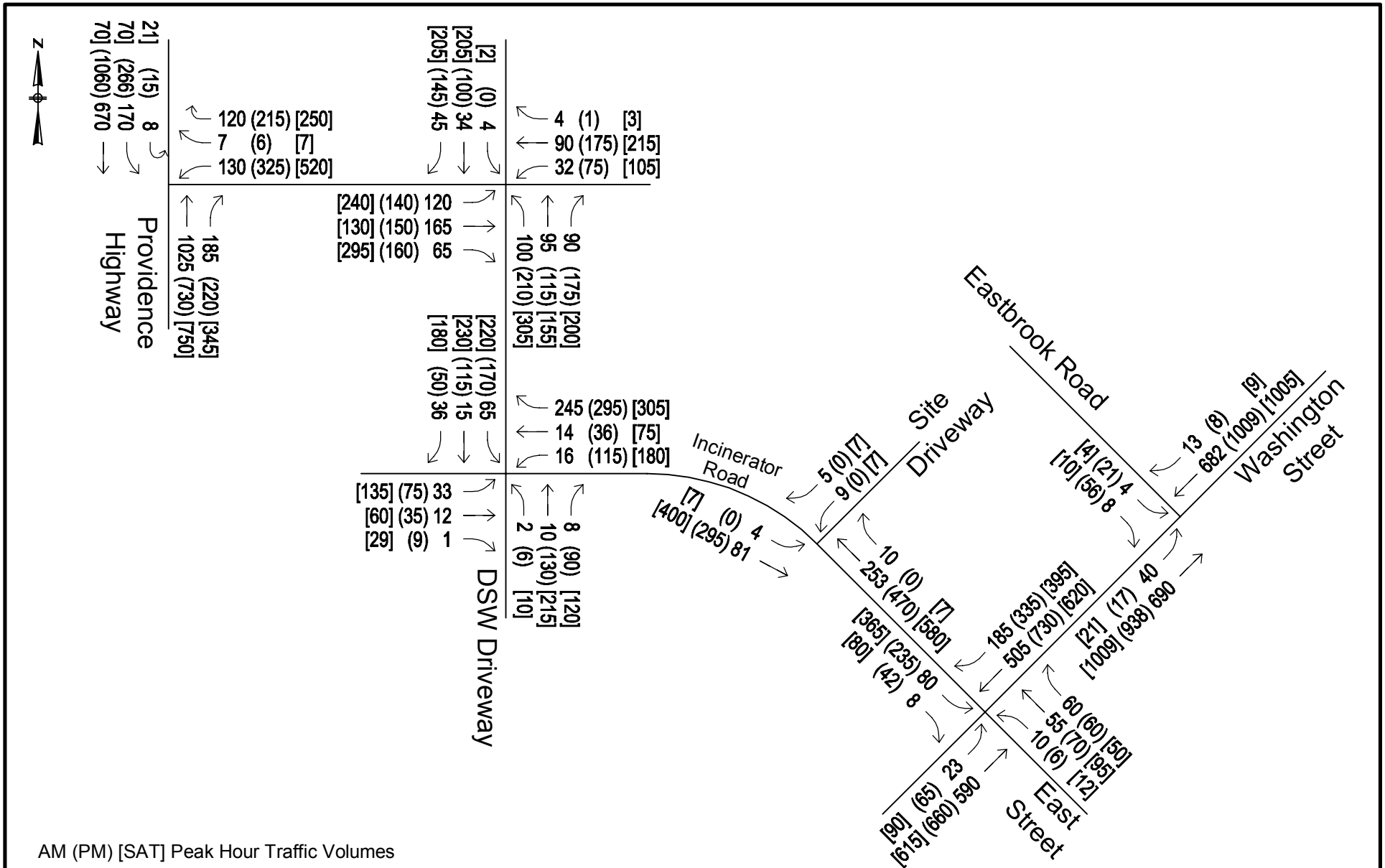
Incinerator Road at DSW Driveway

All individual movements of the unsignalized intersection of Incinerator Road and the DSW driveway operate at LOS A in the AM peak hour and LOS C or better in the PM peak hour. Geometry at the intersection results in adequate storage with the exception of the southbound approach which is governed by the intersection of Incinerator Road and the internal roadways. On this approach, the queues will extend back to the intersection with the internal roadways for the shared left/through lane southbound for the Saturday peak hour only.

During the Saturday midday peak hour, delays exist for the northbound shared left/through/right lane (LOS E, 39.0 seconds) and the southbound shared left/through lane (LOS F, 73.9 seconds). All remaining individual movements operate at LOS D or better.

4.2 No-Build Level of Service (LOS) Analysis Results

To accommodate traffic growth, volumes were projected to a future design year, usually 10-20 years ahead. For this study, it was decided to use a 10 year projection to 2025. This "No-Build" scenario was analyzed for the study intersections with future (2025) volumes under existing geometry and traffic control. The criteria used for the analysis is the same as in the existing conditions. A summary of the analysis results are shown in **Table 6** and **Table 7**. Based on the context of the study area (i.e., a well-developed area with limited additional growth potential), it would appear that little to moderate growth in traffic volumes is anticipated for the future year. The Town of Dedham recommends a 10-year projection using a 1.0% per year growth rate. This results in an approximate 10.5% increase from 2015 traffic volumes when projected to 2025. Projected 2025 AM, PM and Saturday peak hour traffic volumes are shown in **Figure 3.**



AM (PM) [SAT] Peak Hour Traffic Volumes

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Traffic Impact Assessment
Transfer Station Expansion

Dedham, MA

Figure 3

Future (2025) Peak Hour
Turning Movement Volumes

Table 6 – Level of Service Results – No-Build (2025) – AM, PM & SAT Peak Hour (Signalized)

INTERSECTION	AM Peak Hour					PM Peak Hour					Saturday Peak Hour				
	LOS	Delay*	v/c	50th % Queue	95th % Queue	LOS	Delay*	v/c	50th % Queue	95th % Queue	LOS	Delay*	v/c	50th % Queue	95th % Queue
Providence Highway at Incinerator Road															
Providence Highway NB T	B	19.3	0.75	188’	#328’	B	18.1	0.54	123’	180’	C	22.0	0.65	150’	208’
Providence Highway NB R	B	11.9	0.13	0	37	B	14.5	0.15	0	39	B	17.2	0.23	0	52
Providence Highway SB L	C	25.6	0.54	65	119	C	32.6	0.73	104	#212	F	253.2	1.47	346	#496
Providence Highway SB T	A	4.2	0.28	44	73	A	6.2	0.43	90	142	A	7.2	0.44	103	130
Incinerator Road WB LR	C	25.2	0.32	27	51	C	25.6	0.49	59	94	C	31.8	0.78	121	#189
Incinerator Road WB HR	C	24.0	0.08	0	41	C	23.4	0.13	0	49	C	22.8	0.17	0	56
Overall	**B**	**15.6**				**B**	**16.1**				**E**	**55.6**			
Washington Street at Incinerator Road/East Street															
Washington Street NB L	D	37.9	0.35	11’	43’	D	41.0	0.51	29’	85’	D	47.9	0.70	43’	#160’
Washington Street NB T	B	16.2	0.44	98	238	B	18.1	0.43	107	241	B	17.7	0.45	102	239
Washington Street SB TR	B	12.0	0.57	0	129	B	15.2	0.81	0	129	C	25.6	0.93	86	123
Incinerator Road EB L	D	36.9	0.52	28	66	D	46.1	0.71	74	#209	F	279.4	1.48	162	#418
Incinerator Road EB R	C	34.1	0.04	0	0	C	34.0	0.09	0	0	C	33.2	0.15	0	71
East Street WB LT	D	41.2	0.63	43	#120	D	43.8	0.60	42	#148	F	96.4	0.95	66	#208
East Street WB R	D	39.3	0.59	32	#97	D	39.6	0.44	26	#93	D	36.2	0.45	25	#77
Overall	**B**	**18.4**				**C**	**21.9**				**D**	**54.5**			
Washington Street at Eastbrook Road															
Washington Street NB L	C	22.3	0.10	15’	47’	C	23.1	0.03	6’	22’	C	24.6	0.04	8’	20’
Washington Street NB T	A	2.3	0.35	14	23	A	2.7	0.40	21	47	A	7.7	0.49	62	103
Washington Street SB TR	C	27.6	0.76	174	#417	E	60.1	1.00	261	#613	F	147.3	1.24	313	#663
Eastbrook Road EB L	C	34.2	0.06	3	19	D	39.5	0.31	14	46	D	35.1	0.04	2	23
Overall	**B**	**15.6**				**C**	**32.6**				**E**	**76.8**			

* Delay is expressed in seconds per vehicle

- 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after 2 cycles.

Table 7 – Level of Service Results – No-Build (2025) – AM, PM & SAT Peak Hour (Unsignalized)

INTERSECTION	AM Peak Hour				PM Peak Hour				Saturday Peak Hour			
	LOS	Delay*	v/c	95th % Queue	LOS	Delay*	v/c	95th % Queue	LOS	Delay*	v/c	95th % Queue
Incinerator Road at Internal Roadways												
Incinerator Road NB LT	C	16.1	0.47	63’	D	32.7	0.75	155’	F	84.6	1.54	275’
Incinerator Road NB R	B	10.2	0.19	18	B	14.0	0.35	38	D	27.7	0.62	98
Internal Road SB LTR	B	11.8	0.22	20	C	22.1	0.57	88	F	84.3	1.45	278
Incinerator Road EB L	B	12.8	0.29	30	C	15.9	0.32	35	E	44.2	0.78	160
Incinerator Road EB T	B	13.3	0.37	43	C	15.5	0.34	38	C	20.2	0.41	48
Incinerator Road EB R	A	9.7	0.13	13	B	14.2	0.33	35	E	50.0	0.85	203
Internal Road WB L	B	11.3	0.09	8	B	14.5	0.20	18	C	21.7	0.38	43
Internal Road WB TR	B	12.2	0.23	23	C	17.5	0.40	48	E	41.4	0.74	143
Incinerator Road at DSW Driveway												
DSW Driveway NB LTR	A	8.8	0.05	5’	B	14.4	0.41	50’	F	54.9	0.90	240’
Incinerator Road SB LT	B	10.1	0.19	18	C	18.3	0.56	85	F	75.9	1.19	305
Incinerator Road SB R	A	8.4	0.08	5	A	9.4	0.09	8	C	16.8	0.43	53
Internal Road EB LTR	A	9.1	0.08	8	B	13.1	0.28	28	D	28.3	0.63	103
Incinerator Road WB LT	A	8.5	0.06	5	B	12.8	0.30	30	D	31.4	0.71	133
Incinerator Road WB R	B	10.2	0.41	50	B	14.2	0.49	68	D	31.3	0.75	155
Incinerator Road at Site Driveway (North)												
Incinerator SB L	A	0.0	0.00	0’	A	0.0	0.00	0’	A	0.0	0.00	0’
Site Driveway WB LR	B	10.2	0.01	0	C	15.5	0.01	0’	C	21.4	0.01	0
Incinerator Road at Site Driveway (South)												
Incinerator SB L	A	9.1	0.01	0’	A	9.9	0.01	0’	B	11.0	0.01	0’
Site Driveway WB LR	B	12.4	0.02	3	C	17.0	0.04	3	C	17.6	0.04	3
* Delay is expressed in seconds per vehicle												

After traffic growth is added to existing conditions, existing deficiencies for the study intersections during the PM and Saturday peak periods will further degrade in the No-Build condition. A summary of results is provided below:

Providence Highway at Incinerator Road

Delays and queues at the intersection of Providence Highway and Incinerator Road remain relatively the same in the AM and PM peak hours. The overall intersection operates at LOS E (55.6 seconds) for the Saturday midday peak hour, increasing from LOS D (44.2 seconds) in the Existing. The southbound left turn lane remains at LOS F with delays increasing to 253.2 seconds; in addition, the queues on this approach continue to exceed available storage.

Washington Street at Incinerator Road/East Street

Washington Street at Incinerator Road and East Street remains relatively the same in the AM and PM peak hours with overall LOS B in the AM peak hour and LOS C in the PM peak hour, with average delays of 18.4 seconds and 21.9 seconds, respectively. All individual moves operate at LOS D or better. Queues remain adequately served by available storage in both weekday peak hours with the exception of the westbound shared left/through lane. The westbound right turn lane and the eastbound left turn lanes exceed available storage during the PM peak hour only.

During the Saturday midday peak hour the intersection continues to operate at an overall LOS D with an average delay of 54.5 seconds. Significant delays are still present for the left turn eastbound (LOS F, 279.4 seconds) and the shared left/through movement westbound degrading from LOS E (73.1 seconds) to LOS F (96.4 seconds). Queues for the northbound and eastbound left turns as well as both the westbound approaches continue to exceed their capacities. All remaining individual movements operate at LOS D or better and provide adequate storage for queues.

Washington Street at Eastbrook Road

The Washington Street and Eastbrook Road intersection remains at overall LOS B in the AM peak hour and LOS C in the PM peak hour, with average delays of 15.6 seconds and 32.6 seconds, respectively. All individual moves operate at LOS D or better with the exception of the southbound shared through/right lane (LOS E, 60.1 seconds) in the PM Peak Hour only. Queues remain adequately served by available storage in both weekday peak hours with the exception of the southbound shared through/right lane.

During the Saturday midday peak hour the intersection degrades from an overall LOS D with an average delay of 53.5 seconds to LOS E with delay of 76.8 seconds. Significant delays continue to exist on the southbound through/right turn lane (LOS F, 147.3 seconds). All remaining individual movements operate at LOS D or better and provide adequate storage for queues.

Incinerator Road at Internal Roadways

Incinerator Road and the internal roadways connecting to various parking lots continues to

operate at LOS C or better in the AM peak hour. During the PM peak hour the northbound shared left/through lane degrades from LOS C (23.7 seconds) to LOS D (32.7 seconds) while the remaining movements all operate at LOS C or better. Queuing at the intersection remains relatively the same during the AM and PM peak hours with the exception of the northbound shared left/through lane increasing in length.

During the Saturday midday peak hour, significant delays continue to exist for the northbound left turn (LOS F, 84.6 seconds), southbound shared left/through/right lane (LOS F, 84.3 seconds) and the eastbound right turn lane (LOS E, 50.0 seconds); however, delays only slightly increase. In addition, the eastbound left turn lane degrades from LOS D (33.9 seconds) in the Existing to LOS E (44.2 seconds) in the No-Build and the westbound shared through/right lane degrades from LOS D (32.9 seconds) to LOS E (41.4 seconds). All remaining individual movements operate at LOS D or better and queuing remaining relatively unchanged from the Existing conditions.

Incinerator Road at DSW Driveway

All individual movements of the intersection of Incinerator Road and the DSW driveway operate at LOS B or better in the AM peak hour and LOS C or better in the PM peak hour. Queues on the southbound shared left/through lane will continue to extend back to the intersection with the internal roadways for the Saturday peak hour only.

During the Saturday midday peak hour, significant delays continue to exist for the southbound shared left/through lane (LOS F, 75.9 seconds) with delays remaining relatively unchanged. The northbound shared left/through/right lane degrades from LOS E (39.0 seconds) to LOS F (54.9 seconds). All remaining individual movements continue to operate at LOS D or better.

4.3 Transfer Station Expansion Trips

The expansion of the existing transfer station results in an increase of projected traffic volumes to include the added trips from the increased size of the facility. Although the facility will be completed prior to the build year (2025), the increased traffic volumes were based on the year 2025 as a future design year to maintain a conservative analysis.

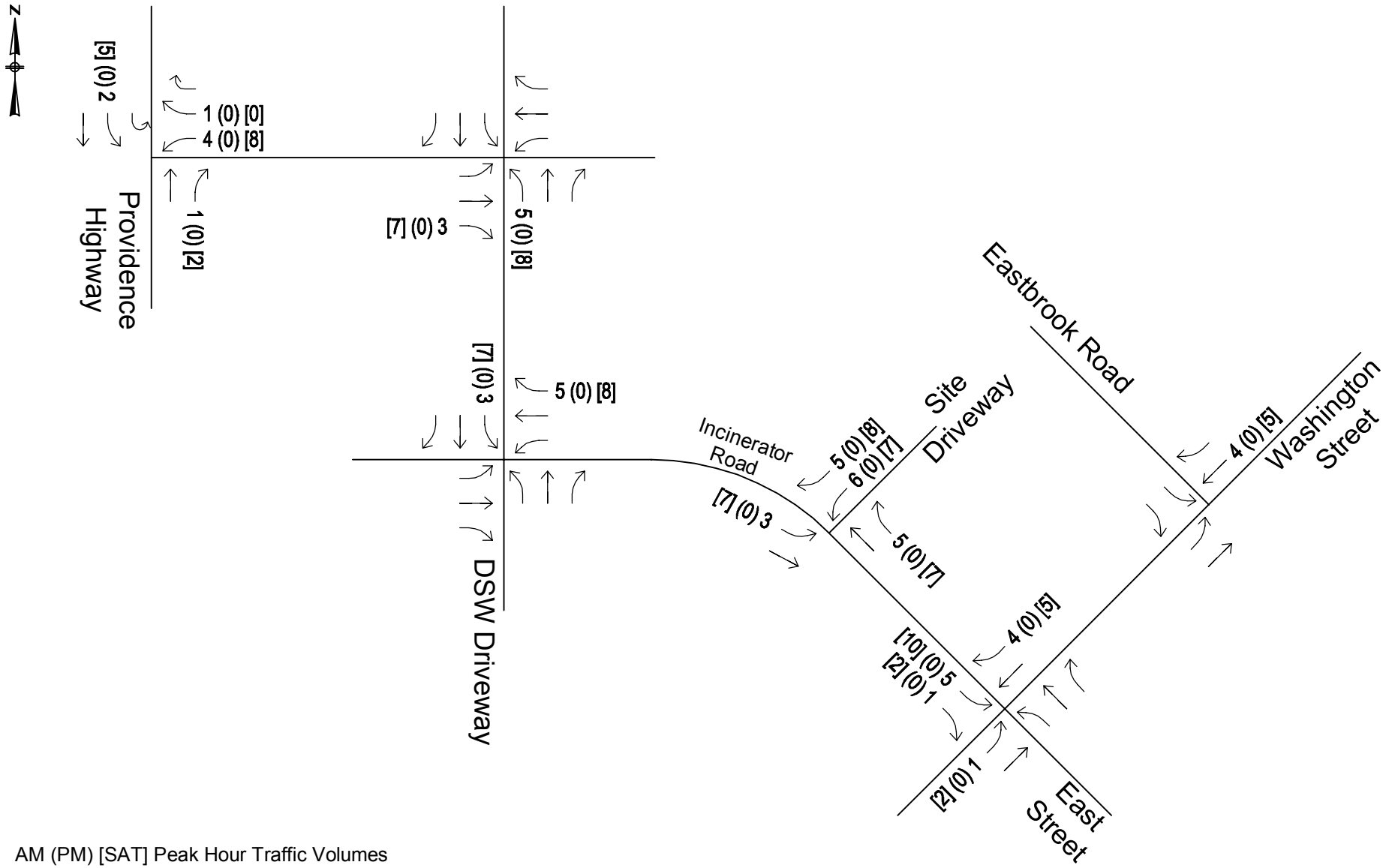
Although the proposed facility will double in size (based on tons per day) from 250 tons to 500 tons, the future truck traffic was designed for a peak tonnage day of 750 tons spread over a six hour period, based on information provided by Woodard and Curran. This equates to approximately 125 tons per hour or 25 trucks (22 dropping off and 3 outgoing). Since the transfer station is closed prior to the commuter traffic peak hour in the PM, the commuter peak hour was factored to an afternoon peak hour of 2:00 PM – 3:00 PM based on ATR counts. This resulted in a 12% reduction in commuter traffic at all study intersections. The proposed truck traffic was then added to both the AM and PM peak hours for analysis purposes.

Similarly, the proposed truck traffic was added during the Saturday peak hour; however, truck traffic is not as significant as during the weekday, resulting in approximately 5 trucks per hour

(4 dropping off and 1 outgoing). In addition to truck traffic, residential drop off will increase to 10 vehicles per hour, twice the existing rate of 5 vehicles per hour. The distribution of truck entering and exiting was determined based on the existing turning movement counts for the trucks dropping off; the outgoing trucks will continue to be restricted to entering and exiting via Providence Highway. **Figure 4** shows the added site trips of the expanded facility, while **Figure 5** shows the resultant turning movement volumes with these added trips.

4.4 Build Level of Service (LOS) Analysis Results

In order to evaluate the traffic impact when the proposed Transfer Station is built, level of service analysis was performed for the study intersections with projected (2025) volumes and the added trips to and from the expanded facility. The criteria used for the analysis are the same as in the existing conditions. A summary of results is shown in **Table 8** and **Table 9**.



AM (PM) [SAT] Peak Hour Traffic Volumes

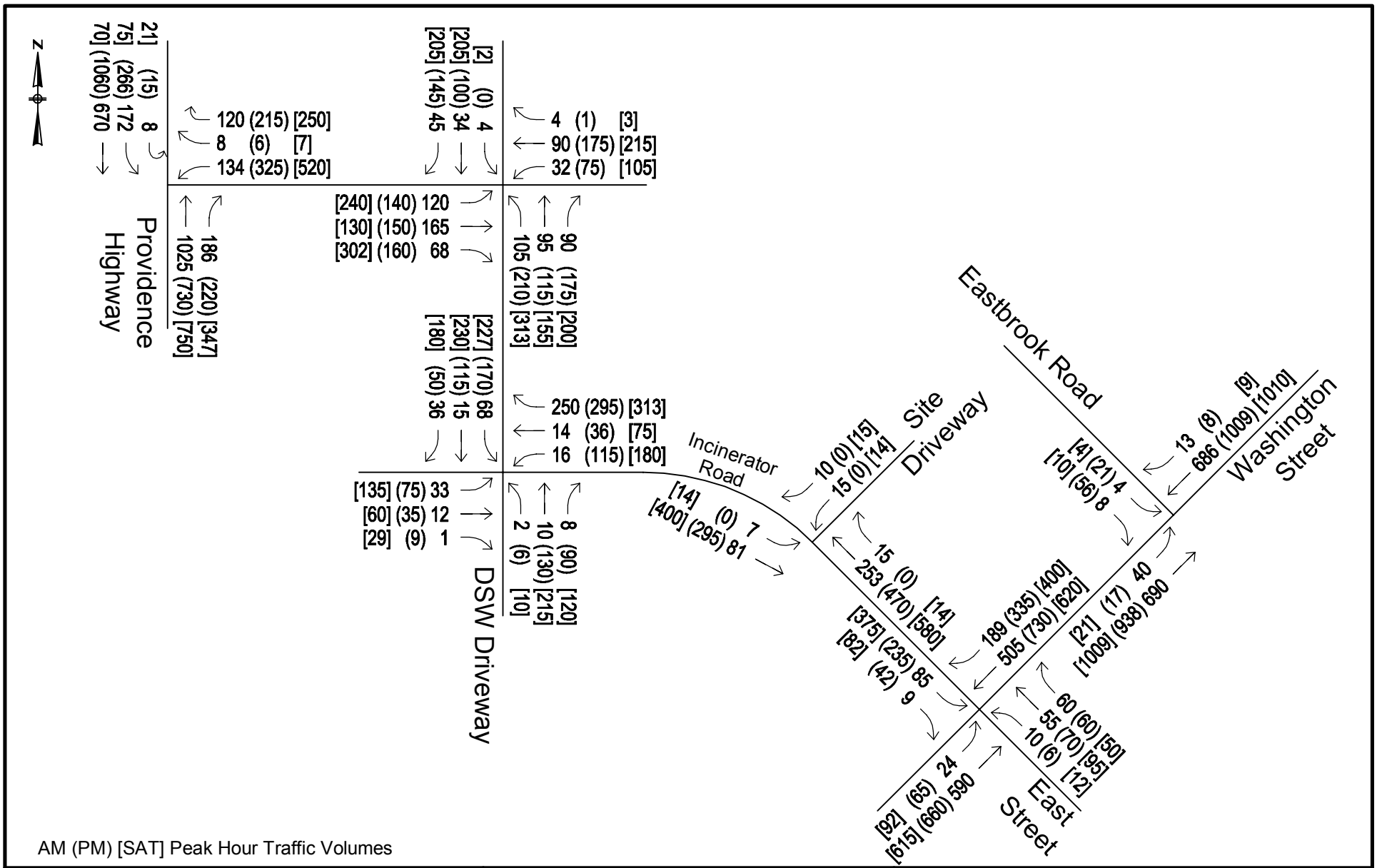
BETA
www.BETA-Inc.com

Traffic Impact Assessment
Transfer Station Expansion

Dedham, MA

Figure 4

Added Site Trips



AM (PM) [SAT] Peak Hour Traffic Volumes

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Traffic Impact Assessment
Transfer Station Expansion

Dedham, MA

Figure 5

Future (2025) Peak Hour
Turning Movement Volumes
with Added Site Trips

Table 8 – Level of Service Results – Build (2025) – AM, PM & SAT Peak Hour (Signalized)

INTERSECTION	AM Peak Hour					PM Peak Hour					Saturday Peak Hour				
	LOS	Delay*	v/c	50th % Queue	95th % Queue	LOS	Delay*	v/c	50th % Queue	95th % Queue	LOS	Delay*	v/c	50th % Queue	95th % Queue
Providence Highway at Incinerator Road															
Providence Highway NB T	B	19.8	0.76	191’	#329	B	17.9	0.52	117’	176’	C	22.2	0.66	154’	214’
Providence Highway NB R	B	12.1	0.13	0	37	B	14.5	0.14	0	41	B	17.3	0.23	0	52
Providence Highway SB L	C	26.0	0.56	69	128	C	32.7	0.73	104	#210	F	218.8	1.39	318	#495
Providence Highway SB T	A	4.4	0.30	47	78	A	6.2	0.43	89	140	A	7.0	0.42	93	127
Incinerator Road WB LR	C	25.2	0.32	28	52	C	25.7	0.50	62	97	C	31.9	0.79	122	#191
Incinerator Road WB HR	C	24.0	0.08	0	41	C	23.3	0.13	0	49	C	21.7	0.01	0	0
Overall	**B**	**15.8**				**B**	**16.1**				**D**	**51.4**			
Washington Street at Incinerator Road/East Street															
Washington Street NB L	D	38.1	0.37	11’	43’	D	40.9	0.52	30’	86’	D	51.1	0.72	45’	#167’
Washington Street NB T	B	16.3	0.43	96	235	B	17.1	0.41	106	237	B	17.8	0.46	105	245
Washington Street SB TR	B	11.8	0.57	2	128	B	15.8	0.80	0	137	C	26.0	0.93	87	123
Incinerator Road EB L	C	34.0	0.33	23	74	D	41.3	0.65	70	#214	F	276.9	1.47	161	#423
Incinerator Road EB R	C	32.7	0.03	0	0	C	33.3	0.08	0	0	C	33.2	0.15	0	71
East Street WB LT	D	48.0	0.68	35	#128	E	65.9	0.76	40	#142	E	67.3	0.83	57	#209
East Street WB R	D	43.9	0.61	26	#102	D	45.4	0.58	25	#92	D	35.9	0.39	22	#78
Overall	**B**	**18.1**				**C**	**22.2**				**D**	**52.6**			
Washington Street at Eastbrook Road															
Washington Street NB L	C	22.3	0.10	15’	49’	C	23.4	0.03	6’	23’	C	24.6	0.04	8’	20’
Washington Street NB T	A	2.1	0.34	14	18	A	2.8	0.42	20	47	A	7.7	0.49	62	103
Washington Street SB TR	C	26.5	0.72	161	#411	E	61.4	1.01	281	#652	F	150.1	1.25	316	#667
Eastbrook Road EB L	C	34.2	0.04	2	22	D	38.4	0.23	11	#70	D	35.1	0.04	2	23
Overall	**B**	**14.8**				**C**	**33.4**				**E**	**78.4**			

* Delay is expressed in seconds per vehicle

- 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after 2 cycles.

Table 9 – Level of Service Results – Build (2025) – AM, PM & SAT Peak Hour (Unsignalized)

INTERSECTION	AM Peak Hour				PM Peak Hour				Saturday Peak Hour			
	LOS	Delay*	v/c	95th % Queue	LOS	Delay*	v/c	95th % Queue	LOS	Delay*	v/c	95th % Queue
Incinerator Road at Internal Roadways												
Incinerator Road NB LT	B	14.2	0.41	50’	D	31.5	0.73	148’	F	84.9	1.54	275’
Incinerator Road NB R	A	9.5	0.16	13	B	13.8	0.33	38	D	27.5	0.61	95
Internal Road SB LTR	B	10.7	0.17	15	C	21.1	0.55	80	F	84.5	1.35	275
Incinerator Road EB L	B	11.8	0.25	25	C	15.8	0.32	35	E	45.1	0.79	163
Incinerator Road EB T	B	12.0	0.32	33	C	15.4	0.34	38	C	20.3	0.41	48
Incinerator Road EB R	A	9.2	0.12	10	B	14.1	0.33	35	F	55.1	0.88	220
Internal Road WB L	B	10.7	0.07	5	B	14.5	0.20	18	C	21.8	0.38	43
Internal Road WB TR	B	11.2	0.20	18	C	17.6	0.41	48	E	41.9	0.75	143
Incinerator Road at DSW Driveway												
DSW Driveway NB LTR	A	8.5	0.03	3’	B	13.5	0.38	45’	F	59.1	0.93	253’
Incinerator Road SB LT	A	9.5	0.15	13	C	16.9	0.52	75	F	76.4	1.25	303
Incinerator Road SB R	A	8.0	0.06	5	A	9.1	0.08	8	C	17.3	0.45	55
Internal Road EB LTR	A	8.8	0.08	5	B	12.3	0.23	23	D	30.4	0.66	115
Incinerator Road WB LT	A	8.2	0.05	3	B	12.2	0.27	28	D	31.7	0.71	133
Incinerator Road WB R	A	9.0	0.32	35	B	13.3	0.46	60	D	33.5	0.77	165
Incinerator Road at Site Driveway (North)												
Incinerator SB L	A	0.0	0.00	0’	A	0.0	0.00	0’	A	0.0	0.00	0’
Site Driveway WB LR	B	12.7	0.06	5	C	16.8	0.08	8	C	18.8	0.11	10
Incinerator Road at Site Driveway (South)												
Incinerator SB L	A	9.2	0.01	0’	A	9.9	0.01	0’	B	11.0	0.01	0’
Site Driveway WB LR	B	0.0	0.00	0	A	0.0	0.00	0	A	0.0	0.00	0
* Delay is expressed in seconds per vehicle												

Once the site trips were added to the No-Build conditions, existing deficiencies for the study intersections during the PM and Saturday peak periods will degrade only slightly in the Build condition. A summary of results is provided below:

Providence Highway at Incinerator Road

Delays and queues at the intersection of Providence Highway and Incinerator Road remain relatively the same in the AM and PM peak hours. The overall intersection improves from LOS E (55.6 seconds) in the No-Build to LOS D (51.4 seconds) for the Saturday midday peak hour. The southbound left turn lane remains at LOS F with delays increasing to 218.8 seconds; in addition, the queues on this approach continue to exceed available storage.

Washington Street at Incinerator Road/East Street

Washington Street at Incinerator Road and East Street remains relatively the same in the AM and PM peak hours with overall LOS B in the AM peak hour and LOS C in the PM peak hour, with average delays of 18.6 seconds and 22.2 seconds, respectively. All individual moves operate at LOS D or better, with the exception of the westbound shared left/through lane degrading from LOS D (43.8 seconds) in the No-Build to LOS E (65.9 seconds) in the Build. Queues remain adequately served by available storage in both weekday peak hours with the exception of the westbound shared left/through lane and the westbound right turn lane. The eastbound left turn lane during the PM peak hour also exceeds available storage.

During the Saturday midday peak hour the intersection continues to operate at an overall LOS D with an average delay of 52.6 seconds. Significant delays are still present for the left turn eastbound (LOS F, 276.9 seconds) with the shared left/through movement westbound improving from LOS F (96.4 seconds) to LOS E (67.3 seconds). Queues for the northbound and eastbound left turns as well as both the westbound approaches continue to exceed capacity. All remaining individual movements operate at LOS D or better and provide adequate storage for queues.

Washington Street at Eastbrook Road

The Washington Street and Eastbrook Road intersection remains at overall LOS B in the AM peak hour and LOS C in the PM peak hour, with average delays of 14.8 seconds and 33.4 seconds, respectively. All individual moves operate at LOS D or better, with the exception of the southbound shared through/right (LOS E, 61.4 seconds). Queues remain adequately served by available storage in both weekday peak hours with the exception of the southbound shared through/right lane.

During the Saturday midday peak hour the intersection remains at overall LOS E with an average delay of 78.4 seconds. Significant delays continue to exist on the southbound through/right turn lane (LOS F, 150.1 seconds). All remaining individual movements operate at LOS D or better and provide adequate storage for queues.

Incinerator Road at Internal Roadways

Incinerator Road and the internal roadways connecting to various parking lots operates at LOS B or better in the AM peak hour and LOS D or better in the PM peak hour. Queuing at the intersection remains similar during the AM and PM peak hours, with the exception of the northbound shared left/through lane increasing in length.

During the Saturday midday peak hour, the intersection remains relatively the same with delays continuing to exist for the northbound left turn (LOS F, 84.9 seconds), southbound shared left/through/right lane (LOS F, 84.5 seconds), the eastbound left turn lane (LOS E 45.1 seconds) and the westbound shared through/right lane (LOS E 41.9 seconds); however, delays only slightly increase. The eastbound right turn lane degrades from LOS E (50.0 seconds) to LOS F (55.1 seconds) from the No-Build to Build. All remaining individual movements operate at LOS D or better and queuing remaining relatively unchanged from the No-Build conditions.

Incinerator Road at DSW Driveway

All individual movements of the intersection of Incinerator Road and the DSW driveway operate at LOS A or better in the AM peak hour and LOS C or better in the PM peak hour. Queues on the southbound shared left/through lane will continue to extend back to the intersection with the internal roadways for the Saturday peak hour only.

During the Saturday midday peak hour, delays continue to exist for the southbound shared left/through lane (LOS F, 76.4 seconds) and the northbound shared left/through/right lane (LOS F, 59.1 seconds) with delays remaining relatively unchanged. All remaining individual movements continue to operate at LOS D or better.

4.4 Mitigation Alternatives

4.4.1 Signalized Intersections

Improvement alternatives included traffic signal timing optimization at the three signalized intersections. When compared with the Build conditions, all three signalized intersections showed improvements in the AM and PM peak hours. During the Saturday peak hour, greater improvements were achieved at each intersection. Tabular results are summarized in **Table 10** and discussed in detail below:

Providence Highway at Incinerator Road

Delays at the intersection of Providence Highway and Incinerator Road remain relatively the same in both the AM and PM peak hours (LOS B), improving slightly. All individual approaches provide adequate storage for queues, with the exception of the southbound left turn continuing to exceed the available storage.

Table 10 – Level of Service Results – Build (2025) with Signal Timing Adjustments – AM, PM & SAT Peak Hour (Signalized)

INTERSECTION	AM Peak Hour					PM Peak Hour					Saturday Peak Hour				
	LOS	Delay*	v/c	50th % Queue	95th % Queue	LOS	Delay*	v/c	50th % Queue	95th % Queue	LOS	Delay*	v/c	50th % Queue	95th % Queue
Providence Highway at Incinerator Road															
Providence Highway NB T	B	15.0	0.68	160’	223’	B	17.9	0.52	117’	176’	D	45.7	0.92	220’	#342’
Providence Highway NB R	A	9.7	0.13	0	30	B	14.5	0.14	0	41	C	25.2	0.23	0	67
Providence Highway SB L	C	27.7	0.63	66	#128	C	32.7	0.73	104	#210	D	40.7	0.89	246	#423
Providence Highway SB T	A	3.3	0.29	37	53	A	6.2	0.43	89	140	A	7.3	0.41	107	143
Incinerator Road WB LR	C	26.9	0.47	27	53	C	25.7	0.50	62	97	C	34.4	0.77	139	195
Incinerator Road WB HR	C	24.8	0.08	0	37	C	23.3	0.13	0	49	C	24.4	0.01	0	0
Overall	**B**	**13.4**				**B**	**16.1**				**C**	**29.3**			
Washington Street at Incinerator Road/East Street															
Washington Street NB L	D	39.9	0.29	13’	47’	D	40.9	0.52	30’	86’	E	56.4	0.70	58’	#179’
Washington Street NB T	B	16.3	0.41	103	242	B	17.1	0.41	106	237	C	22.2	0.47	141	283
Washington Street SB TR	A	6.6	0.54	2	26	B	15.8	0.80	0	137	C	26.3	0.94	94	131
Incinerator Road EB L	D	37.7	0.36	26	81	D	41.3	0.65	70	#214	E	67.7	0.89	153	#406
Incinerator Road EB R	D	36.1	0.03	0	0	C	33.3	0.08	0	0	D	36.5	0.26	18	113
East Street WB LT	D	44.3	0.61	40	109	E	65.9	0.76	40	#142	E	57.8	0.73	73	#215
East Street WB R	D	41.6	0.55	29	88	D	45.4	0.58	25	#92	D	43.2	0.35	28	82
Overall	**B**	**15.7**				**C**	**22.2**				**D**	**33.4**			
Washington Street at Eastbrook Road															
Washington Street NB L	C	27.3	0.09	18’	58’	C	23.4	0.03	6’	23’	C	21.1	0.03	9’	23’
Washington Street NB T	A	2.2	0.33	14	23	A	2.8	0.42	20	47	A	2.7	0.45	30	60
Washington Street SB TR	C	26.6	0.68	170	#381	E	61.4	1.01	281	#652	F	135.7	1.20	400	#756
Eastbrook Road EB L	D	37.0	0.04	2	23	D	38.4	0.23	11	#70	D	44.5	0.05	2	26
Overall	**B**	**15.1**				**C**	**33.4**				**E**	**68.9**			

* Delay is expressed in seconds per vehicle

- 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after 2 cycles.

During the Saturday midday peak hour the overall intersection improves from LOS E (59.5 seconds) to LOS C (29.3 seconds). The southbound left turn lane also improves significantly from LOS F (258.8 seconds) to LOS D (40.7 seconds). Queues on this approach are reduced yet continue to exceed available storage. All remaining individual movements provide adequate storage.

Washington Street at Incinerator Road/East Street

Washington Street at Incinerator Road and East Street remains relatively the same in the AM (LOS B) and PM (LOS C) peak hours. Queues remain adequately served by available storage in the AM peak hour. Queues on the westbound shared left/through lane, the westbound right turn lane and the eastbound left turn lane continue to exceed available storage, with all remaining individual movements providing adequate storage.

During the Saturday midday peak hour the intersection improves from an overall LOS E with an average delay of 57.0 seconds to LOS D with delay of 33.4 seconds. Where delays are still present for these two movements, both improve significantly. The left turn eastbound improves from LOS F (596.6 seconds) to LOS E (67.7 seconds) and the shared left/through movement westbound improves from LOS F (96.4 seconds) to LOS E (57.8 seconds). In addition, the northbound left turn movement degrades slightly from LOS D (49.7 seconds) to LOS E (56.4 seconds). Queues for these three movements will continue to exceed their capacities. All remaining individual movements operate at LOS D or better and provide adequate storage for queues.

Washington Street at Eastbrook Road

The Washington Street and Eastbrook Road intersection remains at overall LOS B in the AM peak hour with an average delay of 15.1 seconds. The PM peak hour remains at LOS D with an average delay of 33.4 seconds. All individual moves operate at LOS D or better with the exception of the southbound shared through/right (LOS E, 61.4 seconds). Queues remain adequately served by available storage in both weekday peak hours with the exception of the southbound shared through/right lane.

During the Saturday midday peak hour the intersection remains at overall LOS E, improving from an average delay of 78.5 seconds to 68.9 seconds. Significant delays continue to exist on the southbound through/right turn lane (LOS F, 135.7 seconds). All remaining individual movements operate at LOS D or better and provide adequate storage for queues.

4.4.2 Unsignalized Intersections

Mitigation alternatives were also reviewed at the unsignalized intersection of Incinerator Road and the internal roadways connecting to various parking lots. This is currently a four-way stop controlled intersection with significant delays in several approaches, with the majority occurring during the Saturday Peak Hour. Providing police detail at the intersection during the Saturday peak period would help reduce the traffic congestion. This alternative would also

meter the queues at the intersection of Incinerator Road and the DSW Driveway.

5.0 RECOMMENDATIONS

The analysis conducted for this study indicates that intersection delays and queues, predominantly on Saturday, are an existing condition. This condition was verified during our site observations. Possible improvement measures were considered at several levels, including: traffic signal modifications; and a police detail during Saturday peak period.

- Existing traffic operation can be improved by optimizing the signal timing. The three signalized intersections included in the study area were all improved through this measure, and this is recommended regardless of other findings.
- Significant delays currently occur at the two internal unsignalized intersections, east of the Providence Highway intersection. The northerly of these two, which is the closest to Providence Highway, is recommended for a police detail during the Saturday peak period.

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